



Published by
E. HARRISON CAWKER, { Vol. 19, No. 4. MILWAUKEE, AUGUST, 1885.

TERMS: { \$1.00 a Year in Advance
Single Copies, 10 Cents.



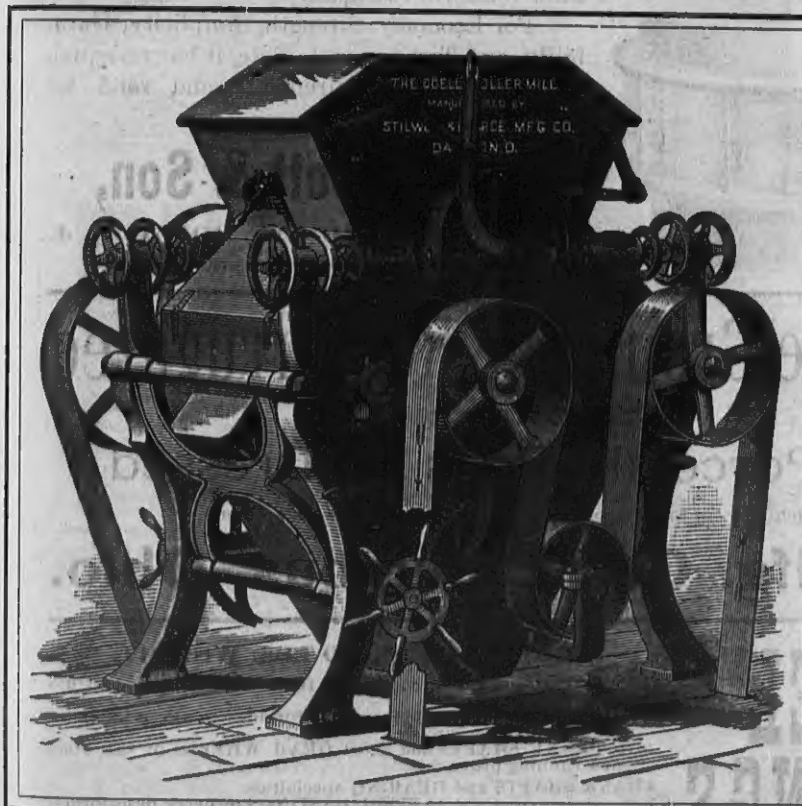
BUY YOUR BOLTING AND WIRE CLOTH

OUR SPECIALTIES: GENUINE DUFOUR BOLTING CLOTH,
PAT. METALIC FASTENED WIRE CLOTH BINDING

ALL WORK GUARANTEED

EDW. P. RULLIS & CO., RELIANCE WORKS, MILWAUKEE, WIS.

ODELL'S ROLLER MILL SYSTEM



Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with unparalleled success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Roller and System, will be furnished on application to all who desire to investigate.

Odell's Roller Mill

Invented and Patented by U. H. ODELL, the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

AN ESTABLISHED SUCCESS!

We invite particular attention to the following

POINTS OF SUPERIORITY

possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, and cannot be used on any other machine.

1. It is driven entirely with belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving-belt from the power shaft, thus obtaining a positive differential motion which cannot be had with short belts.

2. It is the only Roller Mill in market which can instantly be stopped without throwing off the driving-belt or that has adequate tightener devices for taking up the stretch of the driving-belts.

3. It is the only Roller Mill in which one movement of a hand lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.

4. It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings without disturbing the tension-spring.

5. Our Corrugation is a decided advance over all others. It produces a more even granulation, more middlings of uniform shape and size, and cleans the bran better.

WE USE NONE BUT THE BEST ANSONIA ROLLS.

Our Corrugation differs from all others, and produces less Break Flour and Middlings of Better Quality.

Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice, and long experience in arranging mills. Can furnish machines on short notice. For further information, apply in person or by letter to the sole manufacturers,

STILWELL & BIERCE MANUFACTURING CO., DAYTON, O., U. S. A.

Agents for Du Four's Bolting Cloth.

or, GEORGE C. TIETJEN, Gen'l Traveling Agt. for the Northwest, Republican House, MILWAUKEE, WIS.

Office: No. 11 S. George St., York, Pa.



Works: Christiansburg, Lancaster Co., Pa.

It is the BEST constructed and finished Turbine and gives better PERCENTAGE with part or full gate, and is sold for LESS MONEY per horse power than any other Water Wheel. New Pamphlet sent Free.

Improved + Walsh + Double + Turbine



This wheel has a perfect fitting cylinder gate and draft tube combined, and allows no water to escape when closed.

POWER GUARANTEED

equal to any wheel on the market using equal amount of water. Address for particulars,

B. H. & I. SANFORD,

Phoenix Iron Works, Sheboygan Falls, Wis.

STEEL CAR PUSHER

Made entirely of STEEL. ONE MAN with it can easily move a loaded car. Will not slip on ice or grease.

Manufactured by E. P. DWIGHT, Dealer in Railroad Supplies, 407 Library St., Philadelphia, Pa.

[Please mention this paper when you write to us.]



"TRIUMPH" CORN SHELLE

CAPACITY 2000 BUSHELS PER DAY.

Shells wet or dry corn. CHEAPEST AND BEST SHELLE.

PAIGE MANUF'G CO., No. 12 Fourth St., Painesville.



S. S. STOUT.

H. G. UNDERWOOD.

STOUT & UNDERWOOD,

(Formerly Examiners U. S. Patent Office.)

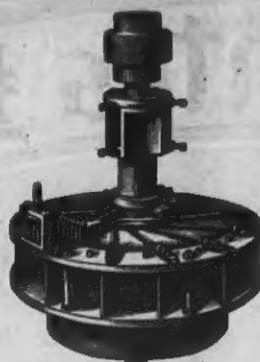
SOLICITORS OF

PATENTS

66 Wisconsin Strt

MILWAUKEE, WIS.

TELEPHONE NO. 502.



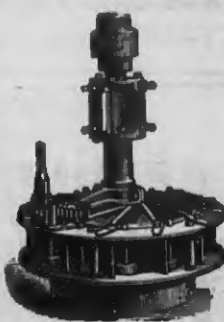
JAMES LEFFEL'S IMPROVED WATER WHEEL,

Fine New Pamphlet for 1885.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads in this country. Our new Pocket Wheel Book sent free. Address,

JAMES LEFFEL & CO., Springfield, Ohio, and 110 Liberty St., New York City.

[Please mention this paper when you write to us.]



POOLE & HUNT'S Leffel Turbine Water Wheel

Made of best material and in best style of workmanship.

Machine Molded Mill Gearing

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own SPECIAL MACHINERY. Shafting, Pulleys, and Hangers, of the latest and most improved designs.

Mixers and General Outfit for Fertilizer Works.

Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—Special attention given to Heavy Gearing for Pulp and Paper Mills.

[Mention this paper when you write to us.]



Alcott's Improved Turbine.

This Wheel is considered one of the most correct that has been devised, gives the highest results, and, with late improvements, is now the best, most practical, and efficient Partial Gate Wheel in existence.

For Economy, Strength, Simplicity, Durability, and Tightness of Gate, it has no equal.

State your requirements, and send for Catalogue to

T. G. Alcott & Son,

MOUNT HOLLY, N. J.

[Please mention this paper when you write to us.]

Rolls Re-Ground ~~AND~~ Re-Corrugated

—TO ORDER.—

Also, Porcelain Rolls Re-Dressed,

Our Machinery for this purpose is very accurate. Can do work promptly.

Case Mfg. Co., Columbus, Ohio.

FROM 1-4 to 15,000 LBS. WEIGHT.

True to Pattern, sound, solid, free from blow-holes, and of unequalled strength. Stronger, and more durable than iron forgings in any position or for any service whatever.

40,000 CRANK SHAFTS and 30,000 GEAR WHEELS of this steel now running prove this.

CRANK SHAFTS and GEARING specialties.

STEEL CASTINGS of every description.

Send for Circulars and Prices to

CHESTER STEEL CASTINGS CO.

Works, CHESTER, PA.

[Mention this paper when you write to us.]

Office, 407 LIBRARY ST., PHILADELPHIA, PA.

Milwaukee & Northern Railroad.

THE OLD RELIABLE ROUTE.

17 Miles the Shortest Line

—TO—

GREEN BAY,Fort Howard, Depere, Menasha,
Neenah, and Appleton.
Marinette, Wis., and Menominee, Mich.

—THE NEW ROUTE TO—

New London, Grand Rapids, and all points in
CENTRAL AND NORTHERN WISCONSIN.The new line to Menominee is now completed, and
opens to the public the shortest and best route to all
points on the Michigan Peninsula.

CONNECTION.

AT PLYMOUTH with the Sheboygan and Fond du
Lac Division Chicago & North-Western R'y for She-
boygan and Fond du Lac.AT FOREST JUNCTION with Milwaukee, Lake Shore
and Western Railway.AT GREEN BAY with Chicago & North Western and
Green Bay, Winona & St. Paul Railroads, for all
points North and West.

C. F. DUTTON, General Supt.

Preserve Your Copies

—OF THE—

UNITED STATES MILLER

—IN AN—

EMERSON BINDER!This Binder is suitable for holding the copies of the UNITED
STATES MILLER for two or more years; is of the Paper's
size, and is strongly made. Price is only EIGHTY CENTS.
Sent postpaid on receipt of price. Address,**UNITED STATES MILLER, Milwaukee,
Wis.**

The most popular Weekly news-
paper devoted to science, mechanics, en-
gineering, discoveries, inventions and patents
ever published. Every number illustrated with
splendid engravings. This publication furnishes
a most valuable encyclopedia of information which
no person should be without. The popularity of
the SCIENTIFIC AMERICAN is such that its cir-
culation nearly equals that of all other papers of
its class combined. Price, \$3.20 a year. Discount
to Clubs. Sold by all newsdealers. MUNN & CO.,
Publishers, No. 361 Broadway, N. Y.

PATENTS.

Munn & Co. have
also had Thirty-
Seven Years' practice
before
the Patent Office, and have prepared
more than One Hundred Thou-
sand applications for patents in the
United States and foreign countries.
Caveats, Trade-Marks, Copyrights,
Assignments, and all other papers for
securing to inventors their rights in the
United States, Canada, England, France,
Germany and other foreign countries, pre-
pared at short notice and on reasonable terms.
Information as to obtaining patents cheer-
fully given without charge. Hand-books of
information sent free. Patents obtained
through Munn & Co. are noticed in the Scientific
American free. The advantage of such notice is
well understood by all persons who wish to dispose
of their patents.
Address MUNN & CO., Office SCIENTIFIC
AMERICAN, 361 Broadway, New York.

SPECIAL BUSINESS NOTICES**BOLTING CLOTH!**

Don't order your Cloth until you
have conferred with us; it will pay you
both in point of quality and price. We
are prepared with special facilities for
this work. Write us before you order.

Address, **CASE MANUF'G CO.**
OFFICE AND FACTORY:
Fifth St., North of Waughten,
COLUMBUS, OHIO.

AUG. HEINE, Silver Creek, N.Y.

Patentee and Manufacturer of

The Silver Creek Centrifugal Reel,

SILVER CREEK DOUBLE SCALPER,

EXCELSIOR IRON CLAD BRAN DUSTER,

UPRIGHT AND HORIZONTAL.

EXCELSIOR WORKS

SEND FOR SPECIAL HARD PAN PRICES.

Read a Testimonial.

SAVES 20 BUSHELS OF WHEAT PER WEEK.

Office of I. N. DOXSEE, Masonville, O., March 12, '96.

COCKLE SEPARATOR MFG. CO.

Gentlemen:—Yours of the 6th at hand. Will say your Cockle Machine is all O. K. and would be useless to think of doing without it. Before we put in your Cockle Machine, we run our wheat through a rolling screen, as many mills are doing to-day, and in order to get out part of the cockle it also took out about twenty-five bushels of small wheat; so we save about 18 to 20 bushels of wheat per week by using your machine. I do not fail to tell men this. Its merits will be better known as it speaks for itself. Yours truly,
E. FOLZ, Head Miller.

The Improved KURTH PATENT

COCKLE SEPARATOR

A PERFECT & ECONOMICAL SEPARATOR

ALSO BUILT WITH

RICHARDSON'S DUSTLESS OAT SEPARATOR

Beardslee's Patent Grain Cleaner.

DIFFERENT SIZES & STYLES. ADDRESS THE

COCKLE SEPARATOR MFG. CO.

MILWAUKEE WIS.

[Mention this paper when you write to us.]

WIRE ROPE

Of the Finest English CRUCIBLE STEEL, and BEST
SELECTED CHARCOAL IRON, for every Purpose.

Wire Rops Transmission.

H. CHANNON Co.,

HORSE AND WAGON

Rain-Proof Covers,

RUBBER PACKED WHEELS,
AWNINGS,
Tents, Flags,
STACK AND BINDER COVERS,
OILED CLOTHING, Etc.

210 to 216 S. Water St., CHICAGO, ILL.

Fish Nets, all kinds. Cordage, Twines, Tackle,
Blocks, Oars, Boat Supplies, &c., &c.

Circulars and any information sent on application.





STRAWS



WHICH SHOW HOW STRONGLY THE BEST MILLERS FAVOR THE

GRAY'S NOISELESS BELT ROLLER MILL

AND THE ALLIS SYSTEM OF ROLLER MILLING.

Messrs. C. A. Pillsbury & Co., the largest milling firm in America, after using the Gray Noiseless Roller Mills for four years, in competition with machines of various other makes, when they decided to rebuild the "Pillsbury B," strictly stipulated that no other Roller Mills but the Gray Patent should be used, and all bidders were required to bid with this understanding.

* * * *

The Washburn Mill Co., of Minneapolis, when they decided to rebuild their "Lincoln Mill" made the same stipulation as above, and the firm building the mill, though manufacturers of a rival machine, are forced to use the Gray Noiseless Roller Mills. The Washburn Mill Co. had used the Gray machines for four years, knew their merits, and were not disposed to try any experiments.

* * * *

Messrs. Kidder & Sons, Terre Haute, Ind., after an experience of over four years in using Gray's Noiseless Roller Mills, will use no others, and for the enlargement of their "Avenue" Mills, have ordered eight more of these famous machines.

* * * *

Messrs. Darrah Bros., Big Rapids, Mich., whose mill, built on the Allis System in 1884, was destroyed by fire a few months since, in rebuilding, would use no other machinery or system, and only required in their contract a guarantee that the mill now building for them should be as good as the mill built in 1884.

* * * *

The Lanier Mill Co., Nashville, Tenn., after three years' experience in running the mill built for them on the Allis system, and using the Gray Noiseless Roller Mills, have placed their order for their new 500-bbl. mill at Memphis, Tenn., with the same builders, none other being asked to figure on the work. The Lanier Mill Co. are also increasing the capacity of their present mill, and refitting it on the Allis system. No stronger proof can be given of the superiority and perfect working qualities of the Allis System and Machinery.

* * * *

The Weston Milling Co., Limited, Scranton, Pa., which operates one of the largest bakeries in the East, recently decided to add an extensive roller mill to their plant, and placed their order for a mill on the Allis system, and using the Gray Noiseless Roller Mills, stating that their long experience in using flour from mills in all sections of the country convinced them that the Allis system of milling was far superior to any other, and that they run no possible risk in adopting it, as they knew beforehand what results it would produce.

* * * *

A whole stack of "Straws" like the above are open to the inspection of millers who are interested. The demand for the celebrated Gray Noiseless Roller Mills, as shown by the order books of the manufacturers, is larger now than ever before, and is steadily increasing. The millers of this country are beginning to see that it takes something more than a fine cut and deceptive advertisements to make a good Roller Mill, and that to insure good results when a mill starts, the practical knowledge drawn from years of experience in designing and building the most successful flour mills in America, is worth vastly more than the strongest guarantees or the most plausible theories.

EDW. P. ALLIS & CO.,

RELiance WORKS,

MILWAUKEE, WIS.



Published by E. HARRISON CAWKER. { Vol. 19, No. 4. MILWAUKEE, AUGUST, 1885.

TERMS: \$1.00 a Year in Advance. Single Copies, 10 Cents.

A FIFTY BARREL MILL.

The mill illustrated on this page is located at Jefferson, Greene county, Penn., about forty miles south of Pittsburgh, and bears the proud claim of being the first all roller mill built in that part of Pennsylvania. The owner, Mr. G. H. Moredock, is a young man, yet is imbued with the prevailing conservatism for which Pennsylvania millers are noted. Mr. Moredock, after receiving various proposals, visited the mammoth mill building establishment of Nordyke & Marmon Co., at Indianapolis, Indiana, where he contracted for the machinery and engine outfit. There are ten pairs of rolls used in making the various reductions on wheat and middlings, while six scalping reels, a four-reel flour bolt and two centrifugals, make the various separations. Three purifiers, one bran duster, a flour packer, and some minor articles aid in making the outfit complete. All this is presided over by Mr. S. Carlisle, as head miller, who is a master of his business. The machinery and power cost, after being delivered and set up, the sum of \$8,000, and the building swelled the sum total to \$10,000. This mill has taken away the best trade of all the other neighboring mills, and is doing a heavy business, as the following letter will testify:

JEFFERSON, PA., Feb. 28, 1885.

Nordyke & Marmon Co., Indianapolis, Ind.:
Gentlemen—Although I am not in the habit of giving testimonial letters, I consider it my duty to do so in this case, because you have built me a MIGHTY GOOD MILL, and I am confident it is the best mill of its size in Pennsylvania. My flour is REALLY EXCELLENT, and has already taken the lead over ALL other brands of flour sold in this section. In fact, I have driven all other trade away, including Pittsburgh flour, which was formerly largely sold here, and my trade extends over three counties, and is still growing. My yield is large and there is no waste. The proportion of low grade is very small. All this is due your perfect milling system. Great praise is also due your ROLLER MILLS, which are marvels of convenience, as well as your improved centrifugals and bolt chests. All your machinery is exceedingly handsome in appearance, and light running. Any of your customers are invited to call upon me and see my mill, for after they do so I am confident they will buy of you.

I am indebted to your millwright, Mr. Lash, and also to Mr. John Call, through whom I purchased my machinery, both being prompt and honorable in all their dealings.

Your truly,

G. H. MOREDOCK.

LATER.—I am going to hire a night miller, first of the week, and run the mill all night. I am compelled to do this to keep up with my orders.

G. H. M.

PROSPERITY.

It is a strong man that can bear prosperity. The assertion may appear strange and, to a

tunity is lost by men losing their heads in a moment of prosperity. Indeed, it sometimes seems to precipitate misfortune in consequence of incapability. Few have the power to turn every success to account. Too great success in young men often leads to misfortune. By some means or other they let slip the golden chance and never recover it again. They have too great faith in their own powers, and leave matters to others that, had they not tasted of the sweets of success, they would have done themselves. They be-

come careless, believing that they have made their fortune and good name, instead of working steadily and carefully in the old groove of economy and energetic push.

Prosperity always brings with it new responsibilities, and it is a neglect of these that often leads to disaster. Great things generally spring from small ones, and it is only by using each advantage as a stepping stone that further success is secured.—Prosperity must be dealt with cautiously, and in order to fully appreciate it there should be a steady, earnest desire to work it out successfully. To bear prosperity we must not merely behave well in the presence of victory, but follow it up along the line, and out of a number of small successes consummate a great triumph. Prosperity is progress, therefore the truly prosperous will never

be content to sit still, but will steadily press forward with a push, energy and enterprise at each succeeding stage.

When a man is unable to bear prosperity it soon becomes visible. He forgets himself, becomes puffed up, proud and vain. Thus he misses opportunities and allows advantages to pass, and ultimately becomes most objectionable and loses the respect of those he most desires. A good deal of allowance can be made when a young man forgets himself and falls into ways that lead him out of the true path of prosperity. But how many who have reached mature years do the same thing, and enter upon a sensational mode of life directly after success dawns upon them. Adversity often acts as a stimulant and spurs us on to greater exertion, but prosperity has a tendency to produce apathy and negligence. Some of the greatest



THE GREENE COUNTY ROLLER MILL, JEFFERSON, PA.

certain extent, ridiculous; nevertheless, it is true and almost beyond dispute. It would probably be more in keeping with the popular idea if we took an opposite view and maintained that it were much more difficult to bear adversity, but then we should be maintaining a proposition that to our mind is untenable. It is no difficult matter to point to hundreds of men who have been absolutely ruined through a sudden elixir of good fortune. It has burst upon them unexpectedly, and they have almost universally lost their heads instantaneously. If it was the luck of falling into a good position, they become petulant, stuck up, and desire to show their authority, instead of working on steadily and ploddingly, in order to gain increased reputation and conquests. Whenever fortune falls upon anyone there is especial need for calm and clear judgment. Oftentimes a golden oppor-

painters, poets and literary men did their best work when adversity was their constant companion. The man who can bear prosperity with calmness and dignity must have a well-balanced mind. He is like the ship well and evenly laden, while the one who forgets himself and loses self-control is exactly like the ship without ballast—the least ripple or wind on life's ocean sends him to the bottom. Prosperity is not a toy which we can play with at will, but the trophy of a real battle that must be hardy fought in order that victory can be assured and enjoyed.

SOUTH AMERICA.

The population of South America, according to the latest accessible data, is about 30,517,380, a very large percentage of which consists of native Indians, Negroes, &c. Its area is about 7,375,898 square miles. The value of the exports from the United States to South America, of domestic merchandise, during the year ended June 30, 1874, was \$30,430,154, of which the value of crude or partially manufactured articles was \$12,035,738, and the value of manufactured articles was \$18,394,416. The following were the articles exported to South America, the value of which, respectively, exceeded \$1,000,000:

CRUDE OR PARTIALLY MANUFACTURED ARTICLES.

Breadstuffs.....	\$5,784,000
Provisions (comprising meat and dairy products).....	2,640,714
Wood, unmanufactured	2,309,451

MANUFACTURED ARTICLES.

Iron and steel, and manufactures of.....	5,141,183
Cotton, manufactures of	2,926,936
Oils.....	1,492,833
Carriages, horse-cars and cars for steam railroads.....	1,313,138
Wood, manufactures of.....	1,063,443

The per cent. of manufactured articles exported to the United Kingdom was 8.8 and to South America 60.4.

The United Kingdom of Great Britain and Ireland stands in the forefront among the nations of the earth as the largest importer of our domestic manufactures. Although its population is only about 5,000,000 greater than that of all the South American states combined, and the area of these states is more than 7,000,000 square miles larger than Great Britain and Ireland, the value of our domestic exports to the United Kingdom was about \$350,000,000 in excess of those exported to South America, and the value of our exports of manufactured articles to the former was upwards of \$33,000,000, or \$15,000,000 in excess of our exports of such manufactures to the whole of South America. These are very suggestive facts in view of the recent efforts of the Government to extend and increase our foreign trade.

NEWS.

BURNED, Courtland Flouring Mills, Seymour, Ind. Insured.

The first car of new Texas wheat arrived in St. Louis June 20.

W. H. Pace, Cave City, Ky., will soon build a 75-bbls. roller mill.

Wm. Bibb & Co., Westminster, S. C., are building a roller mill.

Kirk & Alexander are building a 100-bbls. roller mill at Westfield, Ka.

D. G. Razor, of Lookington, O., will soon erect a 50-bbls. roller mill.

J. H. Wyman, Bangor, Mich., has just completed his 60-bbls. roller mill.

Goulding & Anderson are building a 75-barrels mill at Cambridge, Minn.

Jaeggi & Schupbach, of Columbus, O., are building a 75-bbls. roller mill.

Charles Gallagher will build a 300-barrels roller mill at Cairo, Ill., this year.

John E. Wolfe & Co., Richmond, Ind., are remodeling to the full roller system.

Anderson Bros., of Gleburn, Tex., are building a 100-bbls. steam roller mill.

Union Milling Co., Union City, Ind., have contracted for a 100-bbls. roller mill.

F. L. Clark will build a roller mill at Spokane Falls, W. T. He has a fine water power.

The Minneapolis millers' picnic cleared about \$400 which will go to the monument fund.

The capacity of the Humboldt mill at Minneapolis, will be increased to 1,000 barrels per day.

St. Louis millers have been favored with some good orders for flour from Cuba, Mexico and South America.

BURNED, July 11th, mill owned by Messrs. Clark & Yaryan, and operated by F. D. Brown, Richmond, Ind. Insured.

A. W. Krech has purchased the Holly mill in Minneapolis from Hinkle Bros. It is a 300-bbls. water-power roller mill.

South Australia, Victoria and New Zealand will have less than 30,000,000 bushels of wheat from the 1885 crop available for export.

J. Strachan's grist and saw mills, 8,000 bushels of wheat and 200,000 feet of lumber and 350 cords of pine wood were burned at Lisle, Ont. The loss is \$20,000; insurance, \$4,000.

C. F. Bean, of Stillwater, Minn., has purchased the Munch flour mill, on the Valley Creek stream, below his present mill. When remodeled it will have a capacity of 75 bbls.

Steward & Eames' elevator and flouring mills at Carlisle, Clinton County, Ill., were destroyed by fire July 23, entailing a loss of \$45,000, with insurance of \$32,500. The mill had a capacity of 400 barrels daily.

A. H. Rose, the millionaire California farmer, has gone by the board for \$300,000. That is a good deal for an honest husbandman to owe. The Merchants' Exchange Bank, of San Francisco, is a creditor for \$700,000.

Howes & Ewell, of Silver Creek, N. Y., have been officially notified that the well-known Eureka grain-cleaning machinery manufactured by them, received the highest award—the diploma of honor—at the Paris exposition just closed.

The milling district in Minneapolis is all torn up with improvements to the water power and transportation facilities. In the mean time most of the mills are idle and the employees not able to secure work on the improvements in progress are necessarily idle.

A boiler at Montzen & Son's grist mill at Mobile, Ala., exploded, demolishing the boiler house and parts of adjoining buildings. Henry Scott, Joe Richardson and L. Matthews (colored), employees, were killed, Sally Matthews fatally injured, and Louis Fish (colored) slightly hurt.

The mill of May & Waterbury, at Fort Atkinson, Wis., was burned about 4 o'clock on the morning of July 8. There were 350 barrels of flour and 400 bushels of wheat in the building, all of which were burned. Loss on building and contents \$27,500; insurance \$12,500, of which \$5,000 was in the Miller's National of Chicago. How the fire originated is not known.

The La Grange Mill Co., has been incorporated at Red Wing, Minn., presumably for the operation of the La Grange mill of that city. The incorporators are T. B. Sheldon, F. W. Hoyt, H. E. Perkins, F. Busch, E. W. Brooks and William Busch. The capital stock is limited to \$35,000, and the corporation is to continue for thirty years, commencing with June 15.

The local flour dealers at Halifax, N. S., are greatly incensed at Upper Canadian and American dealers, because they have sent agents there to sell flour either at wholesale or retail, and have pledged themselves to purchase neither flour, oat-meal or corn-meal from any agent, miller or mill-owner who shall personally offer such goods in Halifax.

The annual excursion of the employees of the Geo. T. Smith Middlings Purifier Co. took place June 27.

Two trains were required to transport the 1,600 participants from Jackson to Whitmore Lake, where a delightful day was spent. Dancing, games and athletic sports of various kinds were among the amusements indulged in. No accident occurred to mar the pleasures of the day.

"I've just come in from Kentucky," said a Chicago broker, on 'Change at Cincinnati, "and have been down there to sell wheat to the millers, and have sold 100,000 bushels in a short time. Of all the millers that I met during a five-days' tour, not one reported any offerings of wheat from the farmers. They are receiving our spring wheat, and it is giving satisfaction. Kentucky will not exceed 3,000,000 bushels in production of wheat this year, in my opinion.

The Geo. T. Smith M. P. Co. received, July 11, from their general agent for the continent of Europe, the following cable: "Paris.—Highest awards *hors concours* above all competitors for Geo. T. Smith Middlings Purifier and Centrifugal Reel, and silver medal, for collective display." The message refers to the decision of the jury on awards on the Smith Company's exhibit at the Millers' and Bakers' Exposition at Paris. Inasmuch as more than thirty different centrifugals and still a greater number of purifiers competed for the prize, and the machines were given a practical working test, inspected by a jury of twenty-four members, twenty of whom were Frenchmen, this is, perhaps, the greatest victory yet achieved by the Smith Company in a foreign land. In Europe Expositions are not managed as they are here. There such a number of persons are selected for jurors from among the most representative and best qualified experts as to render any imputation of unfairness, dishonesty or incompetency entirely without foundation. The judgment of such committees is respected there, and in this instance cannot fail to increase on the continent the already very extensive trade of the Smith people.

"There is always room at the top."

The following are among the many orders lately received by the Case Manufacturing Co., Columbus, Ohio: From Karsley & Cook, Herman, Minn., for all the necessary machinery for a full roller mill on the Case system, using 12 pairs of rolls with patent automatic feed; From Messrs. Smith, Stechley & Bolster, Bennington, Kas., for 14 pairs of rolls with patent automatic feed, and all the necessary machinery to complete a 100-bbls. mill on the Case system; From Wm. Hisey, West Branch, Mich., for 8 pairs rolls with patent automatic feed; From Jett & Son, Caldwell, Kas., for 4 pairs of rolls and other machinery; From E. J. Sourwine, Republic, Ohio, for four pairs rolls with patent automatic feed; From Wm. Bradley, Centerville, Iowa, for 2 pairs of rolls with patent automatic feed; From A. L. Strang & Co., Omaha, Neb., for 25 pairs of rolls with patent automatic feed; From the Montgomery Milling Co., Bangs, Va., for a complete outfit for a full roller mill; From W. T. Pyae, Louisville, Ky., for 9 pairs of rolls with patent automatic feed; From Woods & Dunlap, O'Fallon, Mo., for rolls, centrifugal reels, bolting reels and all necessary machinery for the enlargement of their milling capacity; From Dehner & Weurpel Mill-building Co., St. Louis, Mo., for 24 pairs of rolls with patent automatic feed; From T. W. Kerr & Co., Hicksville, Ohio, for 2 pairs of rolls with patent automatic feed, in addition to a previous order; From the Empire Milling Co., Auburn, N. Y., for 10 pairs of rolls with patent automatic feed; The contract of Blair & Stewart, Chattanooga, Tenn., for all the necessary machinery for a full roller mill; From W. W. Allen, Fargo, Dak., for bolting chests and other machinery; An additional order from John Spencer, Wauconda, Ill., for 2 pairs of rolls with patent automatic feed; The contract of Davis & Greely, Lebanon, Ohio, for a full outfit of rolls, centrifugal reels, bolting reels, scalping reels &c., for a full roller mill on the Case system; From T. P. Francis, Salineville, Ohio, for 2 pairs of rolls with patent automatic feed; From A. J. Cilaeger, for additional machinery for his mill at Greenville, O.; From Sam'l Lewis, Jamestown, Ind., for rolls. Messrs. Deanninger Bros., "Old Red Mill," Adrian, Mich., was remodeled to the Case system three years ago; about four months ago it was destroyed by fire, and after all matters were properly adjusted, they concluded to rebuild, and have placed their order with the Case Manufacturing Co., for all the necessary machinery to complete the same. This makes the third mill they have built on the Case system, is conclusive proof that they are well satisfied with the workings of the machinery.

THE ELDRED MILL AT JACKSON, MICH.

Another important addition has been made to the manufacturing industries of Jackson, through the very successful starting of the new 400 bbl. mill of the Eldred Mill Co., which was effected on Monday last. Aside from the value of this enterprise to the city and surrounding country, through the employment it gives to a number of men, and the effect of a new and live bidder in the wheat market on the price of grain, the event is of unusual interest to millers all over the country and to all engaged in the flour trade, by reason of the system of bolting and bolting machines used and the character of the flour produced, which competent judges pronounce superior in quality to any other made in the winter wheat states. The mill is so arranged that a large number of different classes of flour can be made at the same time and that special grades for particular purposes can be furnished suited to the use for which it is required. The highest quality of patent and family flours for home use and fine bakers and pastry grades will be made the leading brands, and dealers will be supplied in such quantities as they may need to meet the demands of their trade. Judging from the opinions we have already heard passed on the product of this mill we don't think we shall be far out of the way in predicting that its flour will at once become the prime favorite wherever it is offered for sale, and that every pound it can make will find a ready market at top prices. The mill building is 45x80 feet on the ground, four stories in height, with Mansard roof, and basement, 13 feet between joists. The machinery occupies only 82x41 feet on each floor and there is ample room around each machine. The small space which it was found necessary to devote to machinery is accounted for by the use of the improved bolting reels already referred to. None of the old fashioned, awkward, cumbersome bolting chests, with their long, heavy, power consuming reels, are to be found in the Eldred mill, but in their stead a machine known as the Geo. T. Smith Centrifugal, requiring little space, having immense capacity, running with merely nominal power, easy of access to all its parts and elegant in design and finish. Only ten of these reels are used for bolting all the flour made in the Eldred mill, whereas for a mill of its capacity on the old system, and with the common bolting chests, thirty reels, each sixteen feet long and thirty-two inches in diameter, would have been required. The space occupied by the Centrifugals is about one-third what would have been necessary for common reels, thus effecting a saving of a large amount of room for other purposes, or in the size and cost of the mill building, as the case may be. In the matter of power, and consequently reduced cost of fuel, the advantage of the Centrifugal over the common reel is as one to four, a consideration of considerable importance to millers at a time when the margin of profit on all mill products is so small as at present. But the chief argument in favor of the Centrifugals appears to be in the vastly superior quality of their work, the flour being brighter, clearer, stronger and more granular than that from common reels, while they make closer separations and a very much cleaner finish. This style of reel has become quite well known within the past two years, and its

manufacturers, the Geo. T. Smith Middlings Purifier Co., are supplying them for complete bolting systems, as well as for use singly on special classes of stock to all parts of the country at the rate of more than three hundred per month. To return to the mill building and its equipment; in the basements are two lines of shaftings for driving the rolls, an underground line to the elevator (which adjoins the mill building on the east and in which the cleaning machinery is located), three flour packers, and a barrel elevator, which delivers the filled barrels directly to the car. On the first or grinding floor are fourteen sets of double rolls, six of which are 9x24 and eight 9x14 inches. On the second floor are five No. 1 Smith Purifiers, and five special purifiers of the same make, working on the roller breaks; on third floor five No. 2 George T. Smith purifiers, and ten No. 1 George T. Smith Centrifugal reels; on the fourth floor are the scalpings for break and germ rolls and the heads of the elevators, twenty-five in number, which run down through all floors to the basement. The flour bins begin under the third floor and run through to the packing floor. The feed is spouted to the elevator building and packed there. The mill was designed by Mr. N. W. Holt, an expert, and a very successful one in planning new process flour mills. In this case he seems to have outdone himself, and has certainly excelled any of his previous efforts. Mr. Holt is in the employ of the Smith Middlings Purifier Co., and devotes his time to furnishing their customers with information on all matters pertaining to erecting or remodeling mills. As before stated the mill has run continuously and satisfactorily ever since it was started, which is a very rare if not unheard of circumstance. It looks just a little as if the long talked of mill which started up new and never required the cutting of a spout or the change of a cloth had at last been found. A large number of visitors have already inspected the mill, and the mill company are in receipt of scores of requests from all quarters of the country for permission to examine it and for information in regard to its special features. All who have so far been favored with a view of the mill are emphatic in their expressions of admiration for its completeness, simplicity, convenience of arrangement and especially for the equality of its work. We learn that it is the intention of the company to welcome all who come and to afford every visiting miller the fullest opportunity to examine the machinery used and to study the system on which it is arranged.—*Jackson Paper.*

AN ASTONISHER IN TRAVEL.—W. B. Valentine, of Painesville, Ohio, is the inventor of a unicycle which promises, when fully perfected, to astonish the world by its utility and the speed of which it will be capable. The vehicle consists of a wheel 12 feet 10 inches in diameter, which gives a circumference of 40 feet. The center of the wheel is pierced by a shaft, into which the spokes extend from the tire at a considerable angle. Suspended from the center of the shaft in the space between the spokes is the seat to be occupied by the operator. In propelling the wheel the operator works a treadle that is so adjusted as to utilize his full weight in ascending hills or traversing heavy roads.

On each end of the shaft hangs an iron rod that extends to within a few inches of the ground. By an ingenious contrivance the lower end of these rods—which are denominated "safety rods"—can be shifted at the pleasure of the operator to positions near to or some distance from the tire of the wheel. The regulation speed will, however, be two revolutions per second, which is easily attained, and will represent a rate of almost a mile a minute.

PATENTS IN GREAT BRITAIN.—The first commissioners of patents in England were appointed in 1852. The applications then did not exceed 1,000, and in succeeding years rarely exceeded 5,000. A new act in 1883, reducing the fee, and in other ways making the process easier, so stimulated the demand by inventors for government protection that in 1884 the number of applications rose to 17,110; 79 per cent. of these were made by residents in Great Britain. Americans filed 1,181 applications, Germans 890, and Frenchmen 788. The department is more than self-sustaining, and for the year shows a surplus of \$200,000.—*Bradstreets.*

A LETTER FROM J. M. CASE
OF COLUMBUS, O.

PUBLISHER UNITED STATES MILLER.

The George T. Smith Canadian "closing act" is not yet closed. Millers who have read the manifesto of the Smith Company, in relation to their Canadian litigation, are liable to be deceived by the same. It is a cunningly devised document, especially designed to cover up the real facts and to create a fear on the part of millers of the United States to purchase machines of other manufacturers than the Smith Co. The manifesto above referred to is untrue in the following particulars:

1st. The final adjudication of the matter has not yet been reached, and will not be until the October term of the Canadian Superior Court. 2d. The defense of Goldie & McCulloch was not a much more able one than the defense made by the defendants in this country when the decision was rendered against the Smith Company, but said defense of Goldie & McCulloch was a remarkably weak and inefficient one, in view of the fact that not a single witness was called by them. 3. It is untrue in representing that the case was heard by the Privy Council of England, when the facts are, the case was dismissed from this Court without a hearing, it not being regarded of sufficient importance to bring before the highest legal authority of England.

This manifesto does not set forth the importance of the fact that Judge Crofut in deciding upon the matter brought before him, stated that the decision of the Superior Court in the case had "no precedent and that he was unwillingly constrained to give force to the plaintiff's petition." The facts are, as is well known to the legal talent of Canada, that by some inadvertence, the Superior Court worded their decision in such a manner as to make all users of purifiers or patented articles liable for the profits made on such machines, which was not intended and which was contrary to the laws and decisions of Canada and of the United States, and has no precedent in any former decision, and for this reason Judge Crofut remarked that he unwillingly gave force to the plaintiff's petition, which he, in the decision, states is unjust and contrary to any precedent or any former decisions; but it is upon such flimsy pretexts as the above that the Smith Company are prone to manufacture scare-crows with which to intimidate the millers of the United States. The above facts I can substantiate with documentary evidence if it is necessary.

—I am, very truly yours, J. M. CASE.

A FEW WORDS ON MILL BUILDINGS.

The following is the Paper taken as read at the Convention of the National Association of British and Irish Millers, at Glasgow, on Wednesday, June 17, 1885, by G. F. Zimmer, M. I. M. E., Chief Engineer, to Mr. J. Harrison Carter, 82, Mark Lane:

Architecture has been defined as the art of planning and constructing buildings according to their intended use, and it is with the hope of having the mill buildings of the future brought more into harmony with that definition, that I submit my experience on the subject (gained on Mr. Carter's technical staff) to the millers of the United Kingdom. I am sure the experience of every milling engineer is that a large number of the new buildings, erected for roller mill plants, have been very badly designed. The custom, in many cases, has been for the miller to consult an architect, have plans prepared, and put the building into the hands of a contractor before consulting the engineer. Later on, when the mill building is advanced as far as the second or third floor, a rough plan is forwarded to the various milling engineers, asking for tenders. The consequence is, that the milling engineer has to arrange the machines in the allotted space, and he very seldom finds the building the best that could have been designed for his system, and it is not unlikely that he could have arranged the plant in less space, and have had more room round the various machines, if the drawings for the building had been prepared to his own directions. In the designs of the architect, the columns and beams are very often badly arranged, and thus a lot of valuable space may be virtually wasted. The correct, and I think by far the cheapest way would be for the miller to first ask the milling engineers for their tenders, and then decide as to whom the erection of the plant shall be entrusted. The engineer, who has received the contract should make out the plans for the building, and not the architect, as is generally done.

Architecture is founded upon three great principles, which ought to be immutable: (1) the *useful*, without which states and private individuals would be led into superfluous and ruinous expense; (2) the *true*, because it expresses in all its varied forms the great principles of construction upon which it rests; (3) the *beautiful*, which is the end of all arts depending upon design, and no less of architecture, the most useful. To secure that the first two, the useful and true, be attained, the design should be left with the engineer, while millers who are fond of outside artistic ornament should consult the architect, and this division of labor will ensure the best arrangement. This method, I may state, has been followed in the case of the plan before you (plan of Mr. Roger's mill at Bedford, in course of erection), Messrs. Usher & Anthony having carried out the building details.

If the milling engineer has the plans prepared for the architect he can get out all details, and have the wall-boxes and other fittings ready for the builder to build in whilst the walls are being put up. A more substantial job must be made in this way than if the walls had to be pulled to pieces after erection, for the purpose of fixing the wall-boxes, etc., in their proper places. The

milling engineer can arrange the pitch of the beams and joists according to the sizes of his machines, elevators, etc., without wasting any space, and thus have the beams in the most suitable place for fixing the hangers, and thereby get the requisite strength to prevent vibration. The roof can be arranged so as to get the elevators in the most favorable position, with proper fall to the respective machines, whilst if the roof be designed by an architect too flat or too high, he will either get insufficient fall to the machines (which would always be troublesome), or he will get the elevators higher than necessary, and waste of power is the consequence.

Openings in walls and floors might be arranged to admit the machines whole, and thus save the necessity of taking them to pieces to get them to their proper floors.

Now, allow me in a few words, and also with the assistance of the plan before you, to state my ideas of mill buildings, according to the accepted definition of architecture, viz., "the planning and constructing of buildings according to their intended use."

A well-designed roller mill should have not less than four floors, but five or six floors will give a better arrangement. The ground floor, or basement, should only be used for elevator bottoms, spouts, and shafting. The scalpings might also be placed there in low buildings.

The height of the bottom floor depends upon the width of the building to get the proper fall to the elevators, and in a mill 30 feet wide, 10 feet high would be sufficient unless the miller prefer to have a special excavation or tank for the elevator bottoms. In this case 8 feet might do for the bottom floor. The first floor contains all the roller mills, break and finishing, all of which are driven by two lines of shafting fixed in the ordinary way below.

The first floor should have stronger beams than any other floor, as unless the roller mills are very substantially fixed, they are likely to vibrate, especially when driven with gears. As you will observe, there are no machines placed in the second floor except the sacking tackle.

It is not necessary to keep this floor empty, but it is a convenient floor to place spouting to connect the machines of the higher floors with the rolls.

It is also very useful to store the whole night's grinding for the manager to examine in the morning, before trucking it into the warehouse. All the products, flour and offals, are taken off in the second floor. As I said before, if the mill be limited to height, the miller must dispense with these conveniences, and fill the second floor with machinery. If the second floor be not kept specially for sacking off, and the other already-mentioned purposes, the flour and offals can be taken off in the roller floor. The next floor is the most useful for placing purifiers and dust rooms. The two higher floors should be used for all dressing machines, and grading reels. The scalpings may either be on the same floor with the purifiers, or in one of the two top floors. In some cases it might be more convenient to use only the half of the second floor for storing and sacking purposes, and place the scalpings in the other half of the floor.

All the elevators are fixed in the centre of the building where they take the least room, and are in the most convenient position to be fed, and to distribute stuff into their respective machines on the top floors. All the machines should, if possible, be placed between the windows, to allow light to stream through the centre of the mill. Windows should be placed on each side of the building, especially in the purifier and dressing machine floor, as it is impossible for the miller to examine the purifying and dressing if there is not ample light. Long reels and other large machines should be placed either in the centre of the building, where they do not shut out the light, or against one of the back walls of the mill.

The machines should always be arranged with plenty of space round those parts which require the millers attention, and as the profitable working of a mill depends to a great extent on those in charge of it, and considering that the working millers are less likely to trouble themselves about the machines where they are difficult to get at, it is for the milling engineer to design the mill with a good clear space round the purifiers, rollers, dressing machines, etc.

The shape of a flour mill should be oblong, not square. In most cases, 30 feet is sufficient for the width. For a building of this size, one row of columns along the centre would be ample, and it is only a question of having beams of sufficient strength for the span.

Everyone who has erected a flour mill knows that columns often cause great trouble, and by keeping them in the centre of the building, in one line, they are out of the way altogether. I mentioned 30 feet for the width of a mill, but the length depends upon the size of the plant required. 30 feet x 40 feet would be about the right size for a mill to do five sacks per hour; 30 feet x 48 feet for a 6 sack; 30 feet x 56 feet for a 7 sack; 30 feet x 64 feet for an 8 sack; 30 feet x 72 feet for a 9 sack, and 30 feet x 80 feet for a 10 sack per hour plant.

If space be limited, the size of the plant might be reduced, and still be a good workable one, to—

30 feet x 32 feet for a 5 sack per hour plant;
30 feet x 40 feet for a 6 sack per hour plant;
30 feet x 48 feet for a 7 sack per hour plant;
30 feet x 56 feet for a 8 sack per hour plant;
30 feet x 64 feet for a 9 sack per hour plant;
30 feet x 72 feet for a 10 sack per hour plant.

These sizes will only answer for a building of sufficient height.

The size of the warehouse depends upon the requirement of the millers trade, but in any case it might be left the same width as the mill.

The mill and warehouse are of the same size, 30 feet by 40 feet with the wheat cleaning in between. The two walls separating the warehouse and the mill from the wheat cleaning are built straight up, and a tank is put on the top of the wheat cleaning part. The connections between these three separate buildings are three iron galleries outside the mill. There is no opening whatever from one part of the building to the other.

An arrangement similar to this is most favorable for insurance against fire.

The mill must be quite distinct from the warehouse, and it is far better to confine the mill itself into a small space than to use a

large building, half of which is used for the warehouse.

It is very objectionable to have the wheat dust in the flour mill, and the sacks standing about.

The floors in a new building should be beams and 8 inch planks joined together with wooden feather tongues. Iron tongues should never be used in a flour mill. Beams to carry planks on the wall side should be as thin as possible; 8 inch to 4 inch will be sufficient if they are high enough. 1½ inch boards placed diagonally across the planks, with ½ inch of felt between, is better as a covering than 3 inches ordinary planks. This is specially recommended for the roller floor to deaden the sound. A joist floor in a flour mill is not suitable for spouting, and in the event of a fire they burn away much quicker than planks.

The cost of joist and plank floors are about equal.

For lighting a mill, I should strongly recommend electric light, which is the most brilliant, and in the long run the cheapest.

The only objection to electric light is that when the engine is stopped the lights will go out, but this can easily be remedied by having a special small engine to be connected with the dynamo in case the main engine has to be stopped. In my opinion the new small "Tower Spherical" engine is the most suitable one.

I have placed before you my ideas on the construction of mill buildings, and if the hints I have given lead to the mills of the future being designed so that there is a place for every machine, and every machine in its place, they will be better handled by the operatives, better results will be obtained, fewer accidents will happen, and in the keen competition those who have mills of this description cannot fail to succeed, if with this properly designed mill building they match an equally well considered roller system.

PROSPECTIVE INCREASE OF GRAIN DUTIES IN AUSTRIA-HUNGARY.

REPORT BY CONSUL-GENERAL WEAVER, OF VIENNA.

From the inclosed clippings, taken from to-day's *Neue Freie Presse*, you will see that the increased entry duties on grain, as recently adopted by the German Reichstag, viz., from 1 mark to 3 marks per 100 kilograms on wheat and rye, and other grain in somewhat similar proportions, has created no little excitement in this Empire, but particularly in Hungary, where it is feared that their chief industry will suffer materially thereby.

As somewhat the same project is now before the French Parliament, including moreover an increased duty on animals, the agricultural condition of Hungary is becoming quite desperate and her statesmen with great unanimity are ready for retaliation.

In the Hungarian Reichstag yesterday, as will be seen from the telegraphic account in reply to the interpellation of Count Emanuel Andrássy, the minister of commerce, Count Paul Szechenyi, announced that the government had already considered the subject of increased grain duties, and he hoped that before long a project to this end would be laid before the Reichstag, which declaration was received with general approbation.

The translation of the entire article would be very desirable, but lack of sufficient clerical force at present prevents; consequently I must confine myself to the main portions of the interpellation of Count Andrássy and the reply of Count Szechenyi.

Count Andrássy said:

America was the first state to lay down as a principle that the cost of the war of Independence should be paid by Europe, and she realizes this principle by raising the duties on a gigantic scale. The consequence was that America, by increasing her duties, not only developed her industry, but in fact had the expenses of that enormous war paid by Europe. Later on France followed this example on a smaller scale, when, after the Franco-German war, the question of the payment of the thousands of millions of contributions was raised, and France increased her duties on the German frontier. At present France and Germany lay down a particular principle. According to this principle the duties on certain articles of commerce are increased under the pretext that the produce of the ground has diminished, even to the extent that the country is unable to meet competition any longer, and therefore all those that carry thither their products must contribute to cover their expenditures. On the other hand, it is asserted that by raising in this manner the value of the soil, the welfare of the citizen will be increased. Another principle which I consider still more beneficial is that the states have pronounced the doctrine that the friendship of a neighboring state should not be expected when the welfare of its own citizens are in question. France and Germany have already adopted in principle this conception. In the last session of the chambers, Germany has already increased the duty on rye one mark and that on wheat three marks. If we look around in this monarchy, especially in our native country, considering the conditions predominating, we notice that also with us the value of the soil has decreased. No other remedy remains than to do what France and Germany have already practically done, and that we must employ energetic and proper means and not half measures. This we are compelled to do by the conditions that surround us. For, if we allow the importation of the cheaper products of America, Russia, and the neighboring states, which now can no longer be placed on the German and French markets, we will be inundated by them. In view of such a compulsory situation we must also increase our duties. I know that Germany is going to extend still further her protective duties. She is not satisfied with the rye and wheat duties, but will also increase the duties on wood.

As is known, the exports of wood from Austria-Hungary to Germany amount annually to 31,000 car-loads, valued at 12,000,000 to 15,000,000 florins. This article cannot support further expenses. If now Prussia increases her duties on wood the result will be very damaging. Therefore, as I am an adherent of that system which protects the interests of its citizens, I hold it unconditionally necessary to take the same position here, like Germany and France, and to proceed upon the principle of increasing the duties where this is necessary. I am convinced of the beneficial working of such a step, especially should a state which desires to continue in good relations with us have arranged with us in respect to the conclusions made and so rapidly completed. From these considerations I take the liberty of addressing to the minister of commerce the following interpellation:

In view of the fact that France and Germany, proceeding on the principle of relieving the burdens of their citizens, have already concluded to increase the duties on several articles, partly in principle and partly in fact, as has already been done in the German Reichstag, I interrogate the minister for agriculture, commerce, and industries: Does he intend to announce upon the first occasion, and immediately, that Austria-Hungary also declares with all resoluteness

that it is determined in principle to increase the duties on certain articles for the material interests of the country, and also upon the same grounds as France and Germany have done?

Count Paul Szechenyi, the minister of commerce, replied:

With the permission of the honorable House, I will at once reply to the interpellation addressed to me. First of all, I must be allowed to attach a few observations to the motive. It is said that Germany and France proceed upon the principle of lightening the burdens of their citizens.

According to my comprehension this was not the actuating motive of these powers, but they were induced to protect themselves against competition, and by the increase of duties cause the prices of these articles to appreciate, whereby the income of their citizens might be increased. [Laughter on extreme left and cries of "That is it."] Gentlemen laugh, indeed; but if they consider properly the question and answer, they will perceive that an important difference exists between the lightening of burdens and increase of income. I do not deny that a relief is therein included, but it remains, however, of two different sorts. It is natural that if one state accepts an outspoken protective system the neighboring state commits a great mistake should she ignore the same. In view of the existing conditions it is absolutely necessary that Austria-Hungary, following the example of France and Germany, should enter upon the same course and apply upon the raw products pressing upon us from the east the same duties which other states lay upon the imports of our raw products. [Applause.] These regulations must not be taken with a view of lightening our burdens, for, according to my convictions, our burdens thereby will not be increased; for this would be only possible should a decrease of taxation take place in connection with the increased receipts of duties. I myself would desire that this should be accomplished at the earliest moment, and I am persuaded that every nation would bring it about were it possible. For to-day as a reply to the interpellation I would declare briefly and simply that the Hungarian government has already certainly considered and undertaken the necessary steps for the increasing of the duties. I hope the time will not be long before I shall be able to lay the corresponding project of law upon the table of the House. [Great applause.]

The table given in the article on "the German corn laws" shows that the value of the exports of grain, flour, etc., from Austria-Hungary to Germany in 1883 amounted to 114,600,000 florins against 135,900,000 in 1882 and 98,200,000 in 1881; that consequently the question of increased duties is one of vital importance to this Empire, as the increased duty not only renders more difficult the competition of Austro-Hungarian grain on German markets, but they even fear that in consequence of the German markets being shut to American and Russian grain these may be thrown upon the Austrian markets, unless the protection at present existing should be correspondingly increased. Hence no reasonable doubt can be entertained that the grain duties of this country will be increased in the near future. The entire article is full of valuable information, and I regret exceedingly that lack of time absolutely prevents its translation.

LITTLE girl on a visit to St. Louis: "Oh, mama, I think this must be heaven." "Do you, pet? Why?" "Don't you see, mamma, all the ladies and gentlemen have wings; but they are on the sides of their heads instead of their backs." "Hush, darling, those are not wings."—*Boston Post*.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.
H. O. PARKS, ASSOCIATE EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.
SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.

To American subscribers, postage prepaid..... \$1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscriptions..... 1.50
All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
Bills for advertising will be sent monthly, unless otherwise agreed upon.
For estimates for advertising, address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as second-class matter.]

MILWAUKEE, AUGUST, 1885.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

MILWAUKEE AMUSEMENTS.

SCHLITZ PARK.—Performances every evening, Wednesday, Saturday and Sunday matinees.

GRAND OPERA HOUSE.—Performances every evening, and Wednesday, Saturday and Sunday matinees.

GLENSBY'S VARIETY THEATER.—Performances every evening, and Thursday and Sunday matinees.

MILLERS' NATIONAL ASSOCIATION.

OFFICERS:

President—JOHN A. CHRISTIAN, Minneapolis, Minn.
Secretary and Treasurer—S. H. SEAMANS, Milwaukee, Wis.

Vice-Presidents—C. H. Seybt, Highland, Ill.; Homer Baldwin, Youngstown, Ohio.

Acting Executive Committee—John A. Christian, Minneapolis, Minn.; S. H. Seamans, Milwaukee, Wis.; Alex. H. Smith, St. Louis, Mo.; J. A. Hinds, Rochester, N. Y.; C. H. Seybt, Highland, Ill.

OFFICERS OF THE STATE ASSOCIATIONS.

MINNESOTA—W. P. Brown, Red Wing, President; David Bronson, Stillwater, and Geo. A. Pillsbury, Minneapolis, Vice-Presidents; Frank Pettit, Minneapolis, Secretary; W. F. Cahill, Minneapolis, Treas.

IOWA—J. J. Snouffer, Cedar Rapids, President; D. B. Knight, Boone, Vice-President; J. S. Lord, Ogden, Secretary and Treasurer.

KANSAS—Robert Atkinson, Ottawa, President; O. W. Baldwin, Ottawa, Secretary and Treasurer.

MISSOURI—J. F. Lawton, Carrollton, President; Frank Hill, Carthage, and G. Seasinghaus, St. Louis, Vice-Presidents; G. J. Plant, St. Louis, Treasurer; D. B. Kirk, St. Louis, Secretary.

KENTUCKY—Chas. T. Allard, President; W. C. Smith, Louisville, W. N. Grubbs, Henderson, W. S. Giltner, Eminence, and J. N. Myers, Frankfort, Vice-Presidents; W. H. Wherit, Lancaster, Secretary and Treasurer.

ILLINOIS—D. R. Sparks, Alton, President; C. H. Seybt, Highland, Secretary and Treasurer.

INDIANA—Jos. F. Gent, Columbus, President; B. Jenkins, La Fayette, and J. R. Callender, Vincennes, Vice-Presidents.

WISCONSIN—Edward Sanderson, Milwaukee, President; J. L. Clement, Neenah, and Otto Puhlman, Plymouth, Vice-Presidents; S. H. Seamans, Milwaukee, Secretary and Treasurer.

MICHIGAN—J. D. Hayes, Detroit, President; W. D. Hibbard, Grand Rapids, Secretary and Treasurer
OHIO—F. Schumacher, Akron, President; Robert Colton, Bellefontaine, Secretary and Treasurer.

MARYLAND—R. Tyson, Baltimore, President; J. Olney Norris, Baltimore, Secretary; W. H. Woodyear, Baltimore, Treasurer.

NEW YORK—J. A. Hines, Rochester, Secretary and Treasurer.

PENNSYLVANIA—B. F. Isenberg, Huntingdon, President; Landis Levan, Lancaster, Sec'y and Treas.

In Memoriam.

ULYSES S. GRANT.

The death of General Grant, though expected, has sent sorrow and grief throughout our land. No name is better known the world over. The American people have lost their great general and their great citizen; the laborers of the United States have lost one of their truest friends; the Government's well tried servant, twice the people's choice for the highest gift in their power, is dead.

General Grant saved the nation through war, and when peace followed the surrender of Lee, the people looked to him as the one man to take the place of Lincoln.

He took the helm of the United States when the ship of State was amid the breakers, and piloted her to a harbor of safety. He brought the country out of the chaos of financial troubles, and after serving a second term as President left the presidency with as bright prospects for the nation as could be wished.

As a military general, he had a horror of bloodshed, and shrunk from the sacrifice of human life. He was great as a soldier, but greater yet as a citizen. He was more of an American citizen, than he was a mere general—he was a civilian in its loftiest American sense.

His expression: "Let us have peace," is recorded on the pages of his country's history. He was incapable of ill-will; he knew not hatred to his fellow citizens or his fellow-man. He prayed for unity for his country. He harbored no enmity, nor did he ever feel jealousy of his brother officers in the army. He was magnanimous to a fault. Appomattox, with Lee's surrender, is rendered more glorious by the forgiving, Christian spirit that Grant made manifest in the terms of the surrender.

The paragraph which General Buckner says that General Grant wrote cannot be too often printed. It is promotive of forgiveness of the past troubles and dissensions, and, if studied, as it will be more than ever, since his death, will be conducive to a full restoration of "peace and good will" between all sections of the country. Like "oil upon the waters" it will aid in calming the turbulent waves of passion and prejudice:

"I have witnessed since my sickness just what I have wished to see ever since the war—harmony and good feeling between the sections. I have always contended that if there had been nobody left but the soldiers we should have had peace in a year. — and —, are the only two that I know of who do not seem to be satisfied on the southern side. We have some on ours who failed to accomplish as much as they wished or who did not get warmed up to the fight until it was all over, who have not had quite full satisfaction. The great majority, too, of those who did not go into the war have long since grown tired of the long controversy. We may now well look forward to a perpetual peace at home and a national strength that will screen us against any foreign complication."

Never did General Grant appear grander than, when in England, he thanked the English workmen at Manchester, who waited upon him with an address, for their manly sympathy, and for the "kind words that went out from Manchester" for the success of the American Government. The ring of true Americanism sounded through his speech of thanks to those workmen:

"I recognize the fact that whatever there is of greatness in the United States, and, indeed, in any other country, is due to labor. The laborer is the author of all greatness and wealth. Without labor there would be no government, no leading class and nothing to preserve. With us labor is regarded as highly respectable. When it is not so regarded, it is because man dishonors labor. We recognize that labor dishonors no man; and no matter what a man's occupation is, he is eligible to fill any post in the gift of the people. His occupation is not considered in selecting, whether as a law maker or executive of the law."

His solicitude for others, and the desire to prevent suffering by or to them, were the marked characteristics of his conduct and bearing through his long and painful illness. His self-abnegation has scarcely ever been equaled—he was always studious of others' feelings and regardless of his own, and thus awaited the end with an unflinching courage based on Christian fortitude and resignation.

A lady in this city, intimate with the family of the deceased, and who not long since visited them, remarked to the writer that General Grant was a realization of that finest of all sentiments, the very perfection of a true Christian spirit so beautifully expressed by Eliza Cook:

"Should fate do its worst, and my spirit oppressed,
O'er its own shattered happiness pine;
Let me witness the joy in another's glad breast,
And some pleasure must kindle in mine."

The great soldier and the great citizen has gone from among us, mourned as no other American was ever mourned, yet our grief is mitigated by the reflection that his pain has ceased and his sufferings have ended. He is happy. He merited the encomium: "Well done, thou good and faithful servant." To him and of him, we can truthfully quote the solemn dirge:

Close his eyes, his work is done,
What to him is friend or foe-man,
Rise of moon, or set of sun,
Hand of man or kiss of woman?

As man may, he fought this fight,
Proved his truth by his endeavor;
Let him sleep in solemn night,
Sleep forever, and forever.

Fold him in his country's stars;
Roll the drum and fire the volley!
What to him are all our wars,
What but death be mocking folly.

Leave him to God's watchful eye;
Trust him to the hand that made him;
Mortal love weeps idly by,
God alone has power to aid him.

(Written for the United States Miller by John W. Hinton.)

It is reported that Hon. Alexander Mitchell of Milwaukee, has purchased the "Queen B" mill at Sioux Fall, Dak.

PARTIES desiring to purchase a good flouring mill cheap—A BARGAIN—will do well to read J. I. Case's advertisement in this issue.

JOHN THORNTON, Esq., head miller for Messrs. S. T. & R. Coman, at Fox Lake, Wis., made us a pleasant call, July 27th.

AN average wheat crop in Germany is about 72,000,000 bushels, and an average rye crop 218,000,000 bushels.

THE largest grain storage depot in St. Petersburg, Russia, was recently totally destroyed by fire. The loss is enormous.

WORK is rapidly progressing on the new Sanderson grain elevator in this city. It is quite probable that another elevator will also soon be built on the canal.

L. F. HODGES, of Milwaukee, and La Crosse and Winona parties, recently purchased five elevators and seven warehouses from the Fargo Southern Elevator Company for \$50,000.

A MILL Machinery Corporation has been organized in this city under the name of the SUPERLATIVE PURIFIER MFG. CO., which will manufacture Purifiers, Bran Dusters, Wheat Scourers, Scalpers, and the American Centrifugal Bolter.

JAMES LOOMIS, Esq., who has been representing Edw. P. Allis & Co. at the New Orleans Exposition, has taken a vacation to recuperate his health. He will spend some months at Las Vegas, New Mexico. We hope to see him return strong and hearty.

THE Illinois State Fair will be held in Chicago Sept. 14-19, and the American Fat Stock and Dairy Show from Nov. 10 to 19, also in Chicago. Premium list and full particulars can be obtained by addressing Hon. Chas. F. Mills, Sec'y State Board of Agriculture, Springfield, Ill.

THE wheat crop of Minnesota is represented to have suffered 10 per cent. by recent storms, but in Dakota the harvest is turning out well. The statistical agent for Nebraska states the crop will exceed previous estimates, and places the total at 18,000,000. The Washington department thinks the yield in Nebraska will reach 20,000,000 bushels.

THE readers of the UNITED STATES MILLER will be glad to learn that the Wisconsin Central Railroad has secured most desirable terminal facilities in Chicago. It is probable that definite terms will soon be made for permanent terminal facilities in Milwaukee, and then this new line to the Northwest will be one of the grandest lines in the country. The energy and ability of the promoters of the Wisconsin Central are deserving of the highest commendation.

DEATH OF D. G. TEPPER.

It is with deep sorrow that we announce the death of D. G. Tepper, late editor of *The Millers' Journal*, by suicide, in New York City, July 16, 1885.

Mr. Tepper was a highly accomplished and extremely pleasant gentleman, and made warm friends wherever he went. He was but 39 years of age at the time of his death. He leaves a family consisting of wife and eight children, said to be very slightly provided for. Mr. Tepper was of so pleasant and social a disposition that one would think he would be the last to take his own life. The following extract from the *New York Sun* gives the particulars concerning the dead editor.

David O. Tepper, an English journalist, came to this country from London a few years ago to better his fortune. He had hard work to support his wife and family of eight children. He finally got a place at a small salary, as secretary of the *Millers' Journal* Co., and had an office in top loft of 38 Broadway, where he wrote articles for the *Millers' Journal* and carried on also a small business

selling flour mill machinery. Models of machinery were scattered all around the loft.

He got deeper and deeper into debt, and finally moved his family to Port Richmond to secure cheaper lodgings and reduce expenses. His wife went to Europe to visit her relatives a month ago, and he became lonesome and despondent in her absence. He passed Monday night pacing the floor of his room, but was apparently in good spirits when he came to the city yesterday morning with his eldest son, Edward, who is 15, and another son of 13 years. A few minutes after they got to the office Tepper sent the younger lad out with a message to his employer's main office, at 125 Broadway, and then took \$40 in bills from his pocket and handed it to his other boy.

"Take this, Ed," he said, "the children may need it at home."

Then he sent him on an errand. When the boy got back he found his father lying dead on his back on the floor. Beside him lay a 32-calibre revolver with a single cartridge shell in it. He had stood up beside a desk and fired the bullet into his mouth. It pierced the base of the brain and killed him instantly.

Coroner Messmer gave the undertaker permission to remove the body to his shop in Ninth street. In the suicide's clothes were found two railroad tickets, \$2.25 in money, and some office keys. His son Edward cried bitterly over the dead body. He told the coroner that his father had never carried a revolver before and must have bought it secretly. The suicide was for a number of years editor of the *Panama Star and Herald*. After that he was the editor of an Australian newspaper, and in 1882 he went back to London to take charge of the *Corn Trade Gazette*. He gave up the place, in a short time, and started for this country. Word of his death was cabled to his wife yesterday afternoon.

GEMS FROM OUR MILLING EXCHANGES NOT POSTED ON "SHIPSTUFFS."—Why is it, do you suppose, that every new young man that tries his hand at editing a milling journal invariably starts out upon the hypothesis that millers are a set of dumb fools, who should be taught something about making flour? We know this to be the case because we started out years ago upon the same basis, and will a fairly good new hat that we taught the millers a good many things they never dreamed of before and have not realized since. Why, bless you, we just reeked with valuable information; it oozed from every pore of our organism; we were enthusiastic in our self-imposed mission; we confidently looked forward to a revolution which should be the result of our labors, but things didn't revolute worth a cent, and finally it dawned upon us that the milling industry was not inclined to give, bore we down never so hard upon our little lever. It took sometime to convince us that some of our knowledge was not exclusively our own, but when that conviction penetrated and permeated us, it went through us like a powerful cathartic. It came about in this way: It was before the day of roller mills, and not long after the purifier was introduced. We were endeavoring to convince an old miller that by the employment of a rigidly hung runner an absolutely perfect and even granulation of the wheat berry could be accomplished. We knew we were right about this; could demonstrate the correctness of our position with mathematical exactness, and for every objection raised by the old dusty—whom, by the way, we regarded with pitying compassion for his ignorance—we had a remedy. We couldn't convince the old fellow that we were right,

he couldn't convince us that we were wrong, and finally the conversation drifted into the discussion of mill products. We fought a little shy here, as we were not very well up in such matters, and allowed the old man to have his own way. He asked us no questions, and in agreeing with his ideas we felt ourselves on pretty safe ground. Finally the old man, in the most innocent manner imaginable, asked our opinion of "ship-stuffs." "Ah!" thought we, "old fellow, we'll paralyze you now with the extent and variety of our knowledge; we'll show you that in other lines of journalism our knowledge would stand us in good stead;" so we replied that for knees, ribs, etc., we unhesitatingly gave the preference to oak. It was remarkable for toughness and durability, and where used imparted and assured great strength. "What's that got to do with it?" he asked. "Got to do with it?" we echoed, "why everything." "As how?" he asked. "Why," said we, "if you go to build a ship —" "Whose going to build a ship?" said he, "I ain't, and you'd better take a walk to some feed store." We didn't heed his advice, but we did a heap of thinking.—*From the Milling World.*

MILLING IN FRANCE.—Regarding the situation of the French milling industry, a number of the *Economiste Francaise* says, in a recent issue:—"French mills number at least 25,000, with 80,000 pairs of stones, 200,000 persons employed, and 200,000 horsepower. The yearly production aggregates 67,500,000 barrels, worth \$456,000,000. The cost of producing this amount of flour is about \$48,000,000. Twenty years ago French milling took first rank in Europe. Now it is seriously embarrassed, as may be evidenced by the imports and exports from 1872 to 1882, which show 825,848 barrels increase in the former, and 544,417 barrels decrease in the latter. French millers have disdained the new Hungarian milling machinery, secure in the possession of the millstones of La Ferté Sous-Jouarre. As a result, Hungarian flour, is shipped to Paris, despite the tax and expensive transportation. J. Michelet, of Paris, in an excellent pamphlet on the state of milling, estimates that the expense of bringing a metercentner of Hungarian flour to Paris is \$3, but it is sold higher than French flour, owing to its excellence. In the last ten years the Buda Pesth roller mills have averaged 14 per cent. dividend. One mill averaged 27 per cent., and on one occasion paid 40 per cent. The salvation of French mills is not through protective tariffs, but progress and improvement." We quite agree with this latter remark, but it is worth noting that, whatever the dividends of the Pesth mills were in previous years, in the present year very few, if any, mills pay 14 per cent., and several will be fortunate if they pay 5 per cent., so largely has the trade fallen off, especially with England. Orders, indeed, are unobtainable at almost any price, so we are informed by our Pesth correspondent.—*Millers' Gazette* (London.)

THE largest steel vessel ever floated in the great lakes is the steamer *Tioga*, just built for the Union Line at Buffalo. She cost \$225,000, is 302 feet long, and the freight hold is in seven water-tight compartments, with a tonnage of 2,000.

AMERICAN ROLLER MILLING.*

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION—It was with great reluctance that I accepted the invitation of your committee to read a Paper before you. Being an entire stranger in this country, such an introduction seemed not unlikely to militate against a favorable opinion of me, as I might probably in my ignorance of British milling, say something which would excite hostile criticism. I have, therefore, concluded that it would be safest for me simply to recite, as nearly as I can, the experience of American millers in their several steps toward their present plan of milling, and only draw such conclusions as such experience will warrant. My doing so may possibly result in saving some millers in this country from some mistakes into which American millers have fallen. I shall not attempt to give accurate dates, nor can the details of machines be given on this occasion.

We will take up our subject in 1871, when our first successful attempt was made to manufacture a superior grade of flour from cleaned middlings. Previous to this time, middlings had been partially cleaned and re-ground; the result being a flour that could be mixed in with the first flour without lowering the grade. In 1871 a grade of flour was made from the purification of middlings, which sold for say \$8 per barrel more than the flour heretofore made from the same material. This large profit excited the cupidity of every miller who heard of it. Little flour, however, of this quality was produced, for up to this time operative millers were appreciated in proportion to the small amount of middlings they made in grinding—in fact, you might say the less middlings they made, the better millers were they considered. Now however, a change began to take place. The miller who could make most middlings was the most sought after; and everyone began to experiment to see how he could dress his stones so as to make more middlings. Furrows were widened until in some instances they were more than two inches wide; in other cases intermediate furrows were cut through the lands. The draft of the furrows was increased; this being carried so far on some millstones as to give their leading furrows two inches draft to the foot of the diameter of the stone. Next they attacked the face by breaking away around the eye of the stone, so that no reduction of wheat could occur until it passed outside of this circle. Some millers went so far as to cut a circle 32 inches diameter in a four foot stone. Then they bosomed the remainder to within four inches of the skirt. I knew one miller who bosomed the stones quite out to the skirt, leaving them like two inverted saucers. These experiments showed that such a proportion of middlings could be produced as to make, when re-ground under stones, 50 per cent. of middlings flour, but this system of grinding left the bran very thick, and necessitated its being re-ground. For several years this was done with millstones, but this was sacrificing the quality of the second and third grades of flour with a view of making more and more patent.

Every increase in the quantity of middlings necessitated more purifiers being employed, finer bolting cloths, and greater perfection in stone dressing, as well as more careful attention being paid to their system of separations—and many live millers spent freely one month what they made the month before, and a good many of them what they also expected to make for several months to come. This, however, was not true of all millers. In those days, as in the present, there were not a few who said they were only waiting, and their time would come when the new process had fallen flat, and they would then make their improvements; some of these millers are still waiting.

The large percentage of middlings thus produced, had the germ and pieces of broken wheat mingled with it. These were too valuable to be wasted, and purifying them would not prepare them to be made into a high grade of flour. A new departure was therefore necessary, and smooth rolls were introduced to break these down, to release the flour particles and flatten the dirt so that it could be removed by reels and purifiers. This gave another boom to the mill-furnishing trade; and although it reduced the bank account of the miller at first, yet it was such a success from the start that it gave the miller heart to overcome the next difficulty by which he was faced.

A better method was required for cleaning bran, and this led to the introduction of corrugated rolls for the purpose. These were taken into favor more rapidly than any machinery required for the other intermediate steps had been, and their use became general about the year 1880. In this year the Milling Exposition was held at Cincinnati, and the best system of purification came to the front. You may have thought that I had forgotten this branch of the subject; but neither I, nor any other American miller is likely to forget that. The success of Mr. Christian, and Mr. Pillsbury and others, in their introduction of purifiers had drawn the attention of inventors throughout America to the fact that a sure fortune awaited them if they could invent a really first class purifier; and every week or so at this time, a new machine was offered to the trade which was bound to make the miller's fortune if he only adopted it; and guarantees were freely given as to the results these machines would produce, and that they were no infringement of existing patents. This continued until more than fifty different purifiers were in the market. I need not say more on this subject than that most of these machines had a short life, and that millers found to their sorrow the worthlessness of the guarantees which had been given.

The question of purification is now understood by American millers to be one of the first importance; and the more they study it the more they see how much difficulty there is in economically accomplishing perfect purification. And there is no doubt the difficulty and expense arising from this part of the process had delayed the general adoption of high milling for a long time, as, in their effort to save money, many millers had bought cheap machines several times over before they bought efficient ones. In new process milling a perfect purification is a necessary condition of financial success, as no system of reducing middlings to flour

while the dirt is in them will give good flour. Practically you might as well have reduced the wheat to flour in the first instance, for without perfect purification nearly all you might have gained by gradual reduction is lost. This fact got to be well understood by the best American millers whilst they were still reducing their wheat by stones; and this, together with the improved system of bolting which had been arrived at, made the introduction of corrugated rolls for reducing wheat a much less difficult undertaking than it would have been had purification and separation been less perfectly understood. The reason for this is very plain, for in not a few mills they had to make almost no changes in their bolting and purifying machinery, and had only to substitute corrugated rolls for the millstones hitherto used. This change produced a great saving of power, and required but a short stoppage of the mill. In reference to the power saved I can give my own experience in a case where the only change that had to be made was the substitution of the rolls for millstones every other part of the machinery remaining. In this case the out-put was more than doubled with the same power.

The subject of cleaning wheat had also received much attention during these nine years, and millers reached two conclusions, broadly speaking. The one was that it was necessary to clean the wheat thoroughly from all impurities without disturbing the bran, and the other that this could be accomplished best by using separate machines for each part of the process. Thus separators, smutters, brush machines, and cockle cylinders came to be regarded as essentials in any mill claiming to make good flour, and the days of using one combined machine for the entire cleaning of wheat ceased altogether.

In the foregoing account of the changes in our mills I have not mentioned many of the experimental machines that were adopted only for a short time—such as smooth rolls, for first breaking the wheat and then passing it to stones; corrugated rolls, for breaking wheat before passing it on to stones; small stones, 18 inches diameter, for reducing wheat; iron discs, for reduction of wheat, which met with more favor than some of the others mentioned here; disintegrators, for wheat and bran. Also wheat heaters, many different makes of which were experimented with. By mentioning wheat heaters in this connection I do not mean to condemn their use, for I believe a wheat heater which would give an equal heat throughout the body of wheat would be a desirable machine.

We come now to speak of the system at present generally adopted in the States, and which has now been at work a sufficient length of time to demonstrate its success on all kinds and conditions of wheat, and under all changes of climate. So far as my knowledge extends there is not a single mill in the States, with an average production of twenty-five barrels per day, that is not using the system of gradual reduction and purification. There are not ten that I know of, making this quantity, which are not making their reduction by rollers. There are, of course, many mills that have not been overhauled that are doing a little work in gristing; but of those which are doing merchant work, those millers who will not overhaul, have to quit. I say this to you, because several times

*This is a paper read by Mr. M. W. Clark, of the Geo. T. Smith's Middlings Purifier Co., of Jackson, Mich., before the British and Irish Millers Association in Glasgow, June 17, 1885.

since I have been on this side of the water such question as these have been asked:

"Is roller milling a success?"

"Will it do on winter wheat?"

"Will it work on soft wheat?"

"Will it do good work on wet wheat?"

"Do not you think it has seen its best days?"

These questions are probably suggested to thoughtful men, as well as those who desire an excuse for delaying to make changes, and also to those who think a dollar in their hands is worth ten in someone else's, on account of the failures that occur now and then amongst millers having the roller system. I would ask, was there ever a time in stone milling when there were not occasional failures amongst millers? In the United States it is found that speculation is more often the cause of failure amongst millers than anything else. Undoubtedly it is expensive to build a roller mill, and every locality does not offer the trade to warrant the outlay being incurred, and it is not every miller that has the necessary capital to spare to buy a good roller plant, and a poor roller plant is dear at any price. Sometimes, too, it is found in the United States that roller mills built in consequence of the glowing accounts given by the salesmen of mill furnishers, of the great profits immediately to be realised, do not turn out as was expected; for even these gentlemen have been known to make mistakes, I am sorry to say.

One other fact is, that you can buy a roller plant and yet not get a roller mill.

You may have all the rolls, purifiers, bolting reels, centrifugals and wheat cleaning machinery, and yet be a long way from a profit. A complete system of handling the separations may still be absent, for no mere "rule of thumb" will do in planning for high milling separations.

PROGRAMME. The programme, therefore, of the separations is a thing which wants to be studied before even a brick is laid, if you are building a new mill, and when you have got that to satisfy you, and see exactly what machines will be required to carry them out thoroughly, you can then begin to design your building to contain these machines to the best advantage.

But even a well-programmed mill, with the best of machinery, requires "brains" to run it; and the operative miller must be a man with all his wits about him, who takes a genuine interest in his work, and seeks to make every machine run as the manufacturer intended it.

CORRUGATIONS. In the selection of machinery for a roller plant the first question to be decided probably is, What corrugation shall I employ? In the states there are two classes of corrugation claiming the attention of the public: the sharp corrugation, which first gained its reputation on the harder spring wheats, and the round, or Stevens, corrugation, which was first introduced on softer wheats, but has since been adopted also by many hard wheat millers; and there are various corrugations which are more or less modifications of these. Some of these are so constructed that if you run the rolls in one direction you have a sharp corrugation, and if in the other you have more nearly the action of a round corrugation.

ROLL ADJUSTMENTS. The next point to be attended to is the adjustment of the rolls—a point which in many cases has not re-

ceived the attention it deserves for in not a few mills the whole strain is thrown on some trumpery little bracket utterly unfit to receive it, whilst a massive iron framework is introduced in other parts where there is no strain at all to contend with. Those who have carefully examined the action of various makes of roller mills will bear me out when I say that very few of them are so constructed that they keep their adjustments, as to alignment, when the wheat is let on, however nicely they may have been adjusted whilst they were empty.

SCALPERS. As to scalpers, experience has led some in the States to believe that in no case can ordinary centrifugals be advantageously employed for scalping, as the beaters break up the scalper portions of the chop.

SEPARATIONS. With reference to separations, it is well established that certain of these can be best accomplished on ordinary reels, whilst in many separations the centrifugal is a very great gain, and is practically indispensable to produce best results.

CENTRIFUGALS. With regard to this, however, the main difficulty is that many makes of centrifugals in America do not give an even dress to the flour on both sides of the reel. Millers will acknowledge that this is a very important point, and they can test for themselves whether the machines they are using give this result or not. Experiments with centrifugals have shown that the best work is done where the material travels in a direct line from the face of the beater to the surface of the silk, thereby equalizing the quantity and quality of the dress round the whole periphery of the reel; the more perfectly the air is excluded from the reel the more perfectly this is attained. The introduction of air into a reel makes the beaters act as fan blades, and drives the specks through as well as the flour. Another difficulty to be contended with is the tendency to accumulation of the material in the bottom of the reel, thus decreasing its capacity and increasing the wear of the cloth.

DOUBLE WORM CONVEYORS. The importance of double worm conveyors to give an easy control of the cut-off is universally acknowledged in the States, whilst in many European mills the importance of these adjuncts has yet to be appreciated. There may be a few reels in a mill in which you can do with a single conveyor; in the majority of reels, however, a double conveyor is absolutely indispensable to good results.

In the use of centrifugals, builders generally have found the advantage of having the conveyors side by side, with a perfect adjustable cut-off, to avoid leakage between them, and enable the operator to make an absolute separation wherever the slides are set, and thus prevent the uncertainty of a perfect division of products so often found in double worms one above the other. The admission of air into centrifugals greatly increases this difficulty.

The large amount of bolting done in the short length of a centrifugal reel makes this a matter of more importance than would at first sight appear, as according to the proportion that this certain or uncertain cut-off bears to the whole length of the reel, so is its money value increased or diminished. Thus if the uncertain cut-off extends 12 inches on a reel six feet long, one-sixth of the whole capacity is practically useless.

PURIFIERS. Of purifiers, as a representative of the Geo. T. Smith Middlings Purifier Company, I would desire to say but little, but one essential point to obtain a perfect purification, is that a sufficient quantity of material should be fed to the machine to thoroughly and evenly stock it at all times, and under all conditions of grain or atmosphere. This may require returns from the machine itself to itself, but it may be generally made to come from other machines. Another feature that should be carefully observed to avoid waste, is that middlings should not be handled after dusting before passing to the purifier, especially by worm conveyors. This is one reason why a programme should be made before the mill is built, so as to avoid the use of worms in conveying the middlings. It may be well also to note that a good deal of difficulty is often experienced in mills from the fifth break middlings, in a six-break mill being run in with the other middlings, whereas from their different character they require separate treatment.

REDUCTION OF MIDDINGS. The reduction of middlings can be accomplished either by stones or rolls. Some millers find it hard to understand how anyone who has tried rolls for his middlings can be contented to use millstones; and the persistency with which many whom they consider good millers adhere to millstones for middlings reduction, after having experimented with every kind of rolls, gives rise to a good deal of wonder, as every one agrees that middlings reduced on rolls produce a flour of much better color, than any millstone could. This is true as to color, especially if the purification is imperfect, as the use of millstones on impure middlings is certain destruction to the flour. May not the explanation be that those who use millstones regard color as only one factor in the question? Anyone who cares to make the experiment will, I think, find that middlings perfectly purified, reduced on millstones will give a sweeter flour, and one which retains the moisture longer when baked, although it has a yellower tinge, than the flour from the same product reduced on rolls. Is not the cause of this that, after having obtained the most perfect purification possible, there always remains among the middlings some proportion of germ of the same size as the middlings? When reduced on millstones this germ is also reduced and incorporated with the flour, giving it sweetness and a yellowish tinge, whereas, when reduced on rolls, the germ is flattened out and eliminated in the dressing process. When the flour is intended for family use, that produced in this way is preferred, on account of these qualities, as the bread when baked shows as good a color as the roller flour, and in addition has this sweetness and retains its moisture. Scratch rolls produce in some degree the same effect as millstones, but the reason why so many millers prefer millstones is because of their large capacity, and the consequent saving of space in the mill, and as many mills have millstones already in them. Where color is the one thing aimed at, rolls will always have the preference. I do not desire to be misunderstood; I am not an advocate of stones against rolls. I have only sought to explain why I think the one is preferred in some cases to the other. The experiment I have suggested will enable every miller to

ascertain for himself whether I am right in my conclusions, and he can then make his reductions in the way that will best suit his trade.

LOW GRADE. The treatment of low grade is perhaps the most difficult problem which the miller has to face. Too many millers are content to produce the low grade and then to begin to think how to treat it. Probably the better plan is to begin to prepare for it at the commencement of the process, and to finish in the early stages all the dirty portions possible, rather than to wait till you have a variety of products to treat together as low grade.

DUST COLLECTION. The subject of dust collection has received great attention in the States during the past few years, and most of our better grade of mills now have automatic dust collectors for the purifiers; both from the points of view of safety and economy this has been a great step in advance.

PACKERS. In American mills the flour is packed by automatic machines into either bags or barrels ready for delivery, and as in all cases these mills are fitted up to be automatic, the number of men required to work them is reduced to a minimum.

One essential in the favorable working of the mill, when the machinery is of the best, and the programme as near perfection as possible, and the operative millers thoroughly up to their work, is that provision should be made in the elevators and spouting to avoid choking, and thereby avoid the necessity of shutting down a mill, as this is wasteful, and it is difficult to bring it readily back to perfect work.

It is no uncommon thing to meet with millers who say that when they go into a mill they can judge of the work it is making by examining some particular product. In America it used to be the bran-heap, and I understand that in this country it frequently is so to-day. It does not need much reflection to show that you may so overdo the cleaning of your bran as to largely reduce the value of your flour. The same holds true of the middlings. In my experience I have found that the working of a mill depends on so many parts of the process, each contingent on the other, that where the results of any one part of the process are not satisfactory, the shortest way to find out what is at fault is to begin with the motive power, see that it is up to speed, look at the wheat cleaning, the breaks, the separations, purifications and reductions, before you can deal effectually with the point which seems to be at fault. When flour is found to be specky, some millers at once attribute it to the numbers of the silk being wrong, and want a change made there; but it quite as often arises from the way in which some portion of the reduction is made, and can be cured by adjusting this; or, it may arise from imperfect wheat-cleaning, or various other causes.

In conclusion, to make roller milling a success the following are the requirements:—

- 1st.—Location.
- 2d.—Good wheat cleaning.
- 3rd.—Perfect reductions on machinery capable of fine adjustment.
- 4th.—A perfect arrangement of separations.
- 5th.—A perfect purification.

6th.—Such a construction as enables the operator to have a perfect control of his work.

Last, but not least; an operator who knows what he is about.

In the proportion to which the mill attains to these requirements, so it will be a financial success.

ITEMS OF INTEREST.

A SCIENTIST lecturing in Philadelphia on coal said, it takes a prodigious amount of vegetable matter to form a layer of coal; that it is estimated that the present growth of the world would make a layer only one-eighth of an inch thick, and that it would take a million years to form a coal bed 100 feet thick. The United States has an area of 440,000 square miles of coal fields; 100,000,000 tons of coal were mined in this country last year—enough to run a ring around the earth at the equator 5½ feet wide and 5½ feet thick, and there is enough coal in the United States to supply the whole world for a period of 1,500 to 2,000 years. When coal is burned for illuminating purposes at least 90 per cent. is wasted. In the heating of houses 87 per cent. is lost, and in manufacturing 60 per cent. of the energy is made use of. The question of exhaustion of the coal supply is not important. The anthracite coal in Pennsylvania would last 250 years, while the bituminous coal in the same district would supply the world 57 years and the United States 350.

A CORRESPONDENT of the *New World*, describing how every foot of soil is utilized in France, mentions the method pursued to supply the country with fuel by the growth of Lombardy poplar. The correspondent says: "In going from Paris to Geneva, via Dijon, we pass through the best portion of France. For hundreds of miles every inch of land is cultivated. The abrupt hillsides are in grape vines, and the flat land is in grain. Here we see the phenomenon of double crops—a crop of grain and vegetables growing under a crop of trees. The Normandy poplar-trees are from an inch to three feet in diameter. They are planted thickly, but give no shade. They are trimmed within six feet of the top. The boughs, which are cut off every year, make faggots enough to warm France. We often see men and women cradling wheat or hoeing beets in the midst of a wood giving no shade. When you look across the country the tall, boughless trunks look like black streaks painted against the sky. They make the view very picturesque. Wood is sold in France for a sixth of a penny a pound. It is worth as much as corn in Kansas by the pound. So when the Kansas man burns corn he is no more extravagant than the Frenchman who burns faggots."

TURTLE oil is suggested as a substitute for cod-liver oil. The oil is of a yellowish color, and at the ordinary temperatures in this country forms a thick, finely granular fluid, in consistence something like olive oil partly congealed. A gentle heat renders this oil clear and transparent. It possesses little odor or taste and does not quickly turn rancid. Taken in warm milk it is not so objectionable as cod-liver oil. *The Pharmaceutical Journal* is informed that turtle oil has been used with the most beneficial results in all cases where cod-liver oil was indicated, in persons to whom

the nutritive process was defective, in children of strumous disposition, in the sequelae of scarlet fever, in measles and other acute specific diseases. It has proved of the greatest service in scrofulous affections of the eyes, nose and other parts, and has been most beneficial in chronic bronchitis, gout, rheumatism and syphilitic affections; but more particularly useful in phthisis pulmonalis in all its stages. Turtle oil is borne well by the stomach, causing neither nausea, eructations, dyspepsia or diarrhoea.

THE BARLEYS OF DIFFERENT COUNTRIES.

—An interesting investigation has been made by L. Marx, to determine what country produces barley richest in proteid (nitrogenous matter), he having for this purpose analyzed more than 400 samples from different countries and from the harvests of six years. The mean percentage of proteid matter, as given by him, are given as follows: Russia, 12.76; Baden, 12.38; Sweden, 11.97; Danubian Provinces, 11.68; Brunswick, 11.49; North Germany, 11.21; Bavaria, 10.75; Alsace 10.70; Hungary, 10.72; France 10.55; Hesse, 10.44; Wurttemberg, 10.38; Denmark, 9.91; England, 9.69; Austria, 9.61. Some of the Russian Barley gave as high as 16 per cent. of proteid matter; the maximum of Baden was 15 per cent. the minimum 10.60 per cent. Bohemia and England seldom exceeded 10 per cent. Of 68 samples of Bavarian barley examined, six gave over 12 per cent., the remainder under 10 per cent. Of the French barleys, those of Auvergne gave the lowest yields, those of Champagne and Burgundy being up to the average of Bavaria. The percentage of nitrogenous ingredients in Hungarian barley varied more than in any other kind, the numbers ranging between 9 and 12. Thick-skinned grain is usually poorer in nitrogen than thin-skinned, though this is not invariably the case. The quantity of phosphates in barley, though very variable, bears no relation to the percentage of nitrogenous ingredients. Marx considers that chemical analysis is the only means of judging of grain, if the brewer requires regular fermentation and sound yeast.

A NOVEL use, says an Eastern paper, is being made of oyster shells by a Hartford, Conn., man, who is coining money in his new enterprise. The shells are placed in a patented mill and ground. It has a capacity of five tons a day. By an ingenious arrangement sieves are kept at work assorting the dust into fine, coarse, and insufficiently treated. The fine and the coarse are taken by elevator belts to the floor below, where, through canvas chutes, regulated by wooden slides, barrels are rapidly filled. The product is sold for chicken feed. Twenty tons and more are sent yearly to San Francisco, orders are filled from Western States, and Bermuda and the Sandwich Islands have been supplied.

THE oldest water works in the United States are supposed to be those of Bethlehem, Pa., which were built in 1754, by Hans Christopher Christiansen, a millwright, a native of Denmark. The water was taken from a spring issuing from magnesia limestone near the banks of the Menogassi creek, as it was then called. The water was conducted 350 feet through an under conduit into a cistern, whence it was pumped by a lignum vitae pump of 5-inch bore through bored hemlock logs to a height of seventy feet, into a wooden tank in the village square.

MODERN STRIKES.

The workingman sees things from a point of view not quite what it was twenty or even ten years ago. Although arbitration has failed to do good, the sliding scale has been more successful, and its greatest success lies in the circumstance that it has taught the workingman much that he did not know before. So long as employers kept their books secret, so long did the workers believe any cock-and-bull story told them concerning profits, and the injustice with which capital treated labor. The regular publication of the selling price of iron has opened the eyes of iron makers to facts, the existence of which they did not previously suspect. The result of this, and the spread of information in some other directions, has been that strikes are now seldom, ostensibly at least, directed against capital in the old and bitter fashion. In other words, when 40,000 colliers turn out in the north of England they strike, not against the colliery proprietors, but against the consumer. They ask for more wages, or that wages shall not be reduced, according to circumstances. The masters reply that they cannot afford to comply with the men's request, because prices are too low. The men answer that this is quite possible, but that the masters ought to raise the prices, and to compel them to do this they strike. The workingman is shrewd enough to see that when coal is sold for 7s. a ton the masters cannot pay as much wages as if coal was 10s. It is no longer strikes against capital with which we have to do, but strikes against the consumer. The colliers insist that the iron maker shall pay more for his coal. The iron maker insists that the ship-builder and the railway company shall pay more for plates and rails. This would lead to larger expenditure on ships and railways, dearer freights and higher fares. For these things the strikers care nothing at all. But the old parrot cry that capital is getting an undue share of profit is dying out. It is not dead, for such theories die hard; but it is moribund. The question is shall we be better off when it is gone? Is there anything encouraging about its decease? The answer must, we think, be in the affirmative. It is a hopeful sign that men admit that low prices are the cause of low wages. It is a great thing that even the leaders of trades unions concede that masters really do tell the truth when they say that they cannot work at a profit and comply with the demands of the men at the same time. It shows that the hard outer crust of self-deception has at last been penetrated, and it leads to the conclusion that, with a little more teaching, the workingman might learn that his master—that is to say, the capitalist—is as powerless as the man to determine what the selling price of any thing sold shall be.—*London Engineer.*

RAILROAD "SPOOKS."

Mechanics have to deal with such solid matters of fact, and so little with mere speculation, that it seems strange to find any of them given to superstition. Yet we occasionally hear of instances in which mechanics have exhibited their belief in unlucky omens, and even in the appearance of spirits, which are not of the ardent kind. We have known of the refusal of a whole body of workmen to start a new shop on Friday, and the horse-shoe has been nailed over many a shop-

door, "just for luck," by those who would resent the imputation of being superstitious. A story is now being circulated about the queer antics of a ghostly engineer upon the Pennsylvania Railroad. An engineer who had been in the habit of slowing up and blowing the whistle when passing his own house was killed in a collision. His successor could not prevent the engine from going through the same performance every night when passing the house. Some unseen power helped him at the throttle lever and started the whistle blowing. One night he and the fireman both grasped the lever, and held on to it while passing the house. Suddenly the lever was wrenched out of their hands, and pulled out the utmost limit. Away went the train, the engine shrieking, and, before they could get it stopped, it ran upon a switch in Altoona, and wrecked two or three cars that were standing there. Then the engineer, not being able to satisfy his superiors on the road that the ghost alone was responsible for the damage, left, and took a position on another road. This is the essential part of the story, but we will not vouch for its accuracy, leastwise not as far as the ghost is concerned.—*American Machinist.*

NONSENSE.

My hair is eighteen years older than my whiskers," said a lawyer, "and I cannot understand why my whiskers should turn gray first." "Because you have worked so much more with your jaws than your brains."

"The matter is that the rotten thing is full of moths, you miserable —" "Mots! do you say?" indignantly interrupted the dealer. "Vat do you egspect to vind in a \$7 overgoat? Humming birds?"

NO TEARS LEFT. They were holding a funeral in a little town in Missouri, and two or three Eastern drummers went over to the church out of curiosity, and afterwards followed the body to the grave. It was noticed that no one—not even the near relatives of the deceased—even shed a tear, and that evening one of the drummers asked an explanation of the undertaker.

"Oh, that's easy enough explained," he replied. "The shrinkage on Missouri Pacific has cleaned this county out of \$200,000 within the last two years, and we haven't any tears left to shed for nobody nor nothing."—*Wall Street News.*

THE Supreme Court of Pennsylvania has decided that unless persons look both ways in crossing a railroad track they can not obtain damages for injuries they may receive. This gives cross-eyed people a decided advantage over those who can see straight, and in some measure mitigates the affliction of being cross-eyed. Life is full of compensations.—*Boston Courier.*

THE COGITATIONS OF AN INQUISITIVE BOY. I notice however much a girl struggles when you try to get a kiss, if she hears her pa's step approaching she always lets up on the struggle long enough to nab the kiss before the old man appears.

I notice no matter how homely a woman may think her husband is, she always takes it as a gospel truth that her new baby is the prettiest in the world, and "looks just like its father."

HE WANTED HIS PA TO KNOW. How quietly everything was getting on in the

Tuffboy family! The cat was napping on the rug. Tuffboy, Sr., was napping behind his news paper, and the maternal head was dozing the spectacles off her nose. Just then Jimmy came rushing in like a whirlwind on a summer afternoon.

"I say, dad, I've got a dandy curve."

"A—what, sir?" started his father.

"A dandy curve. The fellers say no kid can knock me out of the box."

"Knock you out of the box? What does the boy mean?" queried his mother.

"I don't know; it's all Greek to me."

"Oh, dad! What do you sit over on the ball ground for all this week?" said Jimmy.

There was no more napping in that family for a while.

A SUDDEN CHANGE IN VALUES. "Where are you going with the puppies, my little man?" asked a gentleman of a small boy whom he met with three puppies in a basket.

"Goin' to drown them," was the reply.

"I want a pup for my little boy to play with. What do you say to letting me take one of them?"

"I'll sell you one," spoke up the kid, with American enterprise. "I'll sell you this yeller one for fifty cents, the black one for seventy-five cents, and the spotted one is worth one dollar of any man's money."

"I think my little boy would like the spotted one best, but you ask too much for it. You had intended drowning all of them, but I'll give you twenty-five cents and save you the trouble of drowning the spotted one."

"Twenty-five cents for that spotted purp!" exclaimed the boy. "I can't stand it; taxes is high; rent is high. It costs good money to go into the roller rink. Oh, no; I can't take less than \$1."

"But you intend to drown—"

"Take the black one at seventy-five cents."

"My little boy wouldn't like the black one."

"Take the yaller one at half a dollar. He's dirt cheap."

"My little boy wouldn't like his color."

"Well, then, you'd better tell your little boy to play with his toes," and he continued toward the river. "No party can deadbeat his way on me these hard times."—*Baltimore Times.*

"ARE you interested in the subject of steamboat navigation, sir?" said a wheezy old man with a wandering eye, as he took a seat and made himself at home in the private office of a State street business house the other day.

"No, sir, I am not," said the head of the firm, rather curtly.

"If a man was to tell you that he could build a ship that would cross the Atlantic in twenty-four hours, what would you say?" Inquired the old man, leaning forward to catch the answer.

"I'd say he was a confounded fool," responded the merchant with emphatic promptness.

"Well, sir, I can build that ship."

"You can?"

"Yes, sir, I can."

"Then, sir, permit me to strengthen my previous remark by saying that I consider you a blamed sight bigger fool than my first observation indicated."

"Why so, sir?"

"Because you don't build it. Good day, sir."

The old man picked up his hat and slid out.—*Chicago Ledger.*

UNITED STATES MILLER.

PUBLISHED MONTHLY.

OFFICE NO. 124 GRAND AVENUE, MILWAUKEE.
Subscription Price\$1 per year in advance.
Foreign Subscription.....\$1.50 per year in advance.

MILWAUKEE, AUGUST, 1885.

ANNOUNCEMENT:

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year. SEE COMBINATION OFFERS ON OTHER PAGES.

The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.

TO ADVERTISERS.

Milwaukee, Wis., August 1, 1885.

To Those Interested in the Flouring Trade:

THE UNITED STATES MILLER is now in its tenth year, and is a thoroughly established and much valued trade paper. It has a large regular list of domestic and foreign subscribers. It is sent monthly to United States Consuls in foreign countries, to be filed in their offices for inspection by visitors. It is on file with the Secretaries of American and European Boards of Trade for inspection of members. Aside from the above, thousands of SAMPLE COPIES are sent out every month to flour mill owners who are not subscribers, for the purpose of inducing them to become regular subscribers, and for the benefit of those advertising in our columns. Every copy is mailed in a separate wrapper. Our editions have not been at any time since January, 1882, less than 5,000 COPIES each, and are frequently in excess of that (see affidavit below). We honestly believe that the advertising columns of the UNITED STATES MILLER will bring you greater returns in proportion to the amount of money invested than any other milling paper published. Advertisers that have tried our paper for even a few months have invariably expressed themselves well satisfied with the results. Our advertising rates are reasonable. Send for estimates, stating space needed. The subscription price of the paper with premium is One Dollar per year. Sample copy sent free when requested. We respectfully invite you to favor us with your patronage. We shall be pleased to receive copies of your catalogues, and also trades items for publication free of charge. Trusting that we may soon be favored with your orders, we are,

Yours truly,

UNITED STATES MILLER.
E. HARRISON CAWKER, Publisher.

THREE milling journals are now published in France.

It is estimated that £97,500,000 are invested in flour-mill property in Great Britain.

THE Paris Miller's Exposition made the highest award for dust collectors to the Milwaukee Dust Collector Co.

A TEN-WHEEL locomotive weighing 165,000 pounds is on exhibition at the International Exposition in Antwerp, Belgium.

CABLES from Paris announce that Highest Awards have been made by the French Milling Exposition to the Geo. T. Smith Middlings Purifier and Smith Centrifugal Reel.

PERSONAL.

SIMEON HOWES, Esq., of Howes & Ewell, Silver Creek, N. Y., and Henry Hamper, salesman for the same company, called on us early in July.

GEORGE E. GAULT, Esq., formerly connected with the Simpson & Gault Manufacturing Co., Cincinnati, Ohio, has gone into the mill-furnishing business on his own account.

MR. CUMMER, of the Cummer Engine Co., Cleveland, Ohio, has resigned his position with that company, and will embark in a new enterprise in New York.

MINNEAPOLIS NOTES.

Cooperage has become a very important business in Minneapolis, employing a great many men, and having a capacity for turning out about 16,000 barrels per day. The following is a list of the cooperage establishments with producing capacity and number of persons employed:

	Daily barrel capacity.	No. hands employed.
Hall & Dunn	4,000	168
Phoenix Barrel Co.	500	50
Stephens	300	25
Kennedy's	125	10
Doud & Son	1,000	40
Minneapolis Co-operative	2,750	100
Minnesota Barrel Co.	400	25
Hennepin Barrel Co.	2,250	90
North Star Barrel Co.	3,500	140
Northwestern Barrel Co.	1,250	50

The material used comes principally from Michigan and Wisconsin, the staves being of oak or elm, and the heads of basswood.

A very important business has grown up during the past few years in Minneapolis, which is the supplying of eastern and southern millers with hard spring wheat from the Northwest. As near as can be ascertained this business has increased from about 70,000 bushels in 1876 to 4,500,000 in 1884. Most of this business has been transacted satisfactorily to all parties concerned, but instances occasionally occur where unscrupulous dealers have shipped low grade wheat to fill high grade orders.

The following figures, which may interest the readers of the U. S. MILLER, are the official statements of the aggregate wheat production in the United States, and the total exports of wheat and flour for the twelve ending with the June following, the flour being reduced to its equivalent in wheat:

Year.	Crop, bu.	Exports, bu.
1879	448,756,630	180,327,536
1880	466,549,868	186,341,553
1881	380,280,090	121,914,655
1882	505,185,470	147,838,455
1883	421,066,100	111,534,183

The average exports of the five years were 33.2 per cent. of the production. The exports of the crop year ending with this month are not yet completed.

A BETTER OUTLOOK FOR MILLERS.

C. H. Seybt, of Highland, Ill., a prominent miller and representative of a syndicate of

mills in this section, has just returned from his annual tour through England, Ireland, and Scotland in the interests of milling; and was a visitor on 'Change, in Milwaukee, July 18. Mr. Seybt is president of the Millers' National Insurance Company, chairman of the executive committee of the National Millers' Association, and chairman of the Illinois Millers' Association. Mr. Seybt said that he had visited all the principal flouring markets of Great Britain and the continent, and stated as a result of his observations that the stock of flour in Europe is not as large as has been alleged. He said speculators are sick of speculating, because they have lost money during the past year. Flour ought to go up on the present outlook, and will go up before another wheat crop is harvested. The men over there know it, but they are afraid to buy before autumn on its merits. Leaving all political questions out of the field, one reason why European traders in flour do not buy is that they do not believe that the wheat crop in America is so extremely bad as they try to make out. They think Americans are speculative in figures and apt to run to extremes, saying that a crop is very good or very bad. Therefore they distrust the bad figures. As a matter of fact, however, there is an almost incredible failure of the crops in the winter wheat states—such a failure as I never expected to witness. When the crop is all harvested, and the actual amount of wheat thrashed becomes known, the European market will learn that the crop has not been underestimated. Flour will go up before long. I don't say that prices will be extravagant, because money is secure all over the world and extravagance impossible, but prices for flour will stiffen up considerably."

NEW ELEVATORS IN THE NORTHWEST.

The elevator mania has seized the wheat men. During the summer the Northwestern Elevator Co. will re-build the elevator burned at Crookston, Minn., and will put up six more houses along the Manitoba road, all of 30,000 bushels' capacity. Cargill & Bagley are about to open an elevator in Minneapolis, and in addition to the elevator system now controlled by them will erect ten, and Bassett & Huntington eight new 30,000-bushel houses along the Hastings & Dakota road. H. W. Pratt & Co. will also build eight or ten new elevators on the Hastings & Dakota road, including one each at Webster, Bristol, Groton, Bath, Aberdeen, Warner, and Mallette, all of 30,000 bushels' capacity. Work on the Minneapolis & Northwestern elevator at Ada will commence this week, the lumber being nearly all on the ground. Besides all these there are two new elevators now being built at Duluth, with a capacity of nearly 3,000,000 bushels; the additional elevator to be built by the Canadian Pacific at Fort William, capacity 1,000,000 bushels; and the fifteen to eighteen elevators to be put up by A. J. Sawyer on the main line of the Northern Pacific and the Jamestown and Northern. If elevators were paying property and the late legislature had not passed a law placing great hardships upon their management, some capitalists might be induced to build a few in Minnesota or Dakota this season.—St. Cloud Journal-Press.

THE MESSER ROLLER CORRUGATOR.

The handsome illustration on this page represents the Messer Corrugator for corrugating mill rolls, the very latest improved machine tool of this class.

A brief description by the manufacturers will enable the reader to understand its working. "The roller to be cut is held firmly by both ends and travels straight up and down through an opening in the tool head which rotation simultaneously determines the degree of spiral. This rotation is accomplished by means of a worm operating on a large worm wheel, which forms the outside of the base of the tool-head. The degree of rotation of worm shaft being governed by a set of change gears, which can be combined similar to those used in screw cutting on lathe. The broad base of tool-head is graduated as an index plate, with sufficient number of circles, properly divided, to enable any practicable distributions of corrugations per inch of circumference, and thus making it certain that at the completion of roll there will be no extra wide or narrow corrugations. The tool head can be compared in a general way with a large Universal Combination Chuck with eight jaws; each of these jaws carries a tool. One motion of a lever moves all the tools forward to the work on the down stroke of the roll, while a reverse motion of same draws them back on the up stroke, to prevent wear or breaking. Besides this universal motion, each tool can be given an independent adjustment, if desirable. The tools used are of ordinary tool-steel and as easily made as a chaser for cutting threads in a lathe. The setting of tools on the tool-head requires no special skill or experience; the arrangement being such that once put in the tool post it is bound to find its proper place. After making the starting cut on a roll, the tools need no further care until the roll is finished, as each tool is required to cut only one eighth of the face or circumference of the roll, the wear and consequent grinding of tools so common to chilled iron work are dispensed with and a smooth uniformly cut roll is the result. It is well known that on machines only using one tool it becomes necessary to grind and reset the same several times before a roll is finished. Grinding takes time, and proper resetting is a delicate operation, and the user will therefore appreciate the superiority of this method in this respect.

On the machine is used cut gear to determine the spiral, and a patent index to set the tools ahead for each cut, thus a definite and fixed path is determined for each groove. When rolls are sent for the second re-cutting, the only grinding necessary is just enough to "true" the surface (on other machines the

grooves must be entirely removed), and by using the same gears and index the old grooves can be retraced to the proper depth, will save time, and in the coarser corrugations, one-sixteenth to one-eighth of an inch of chill on the roll. This is an important point to users of geared roller mills, enabling

quired to materially change adjustments. On machines where roll is held by one end only, and operated upon by a single tool, there is naturally a strong tendency to spring away from the cut. By this method, the roller being held at both ends, the spring or torsion of the gudgeons is overcome. Further-



THE MESSER ROLLER CORRUGATOR.

the rolls to be re-cut many times, using the same driving gears, whose pitch circles have not been thrown enough to destroy the smooth working; while gears running on rolls recut by planers will work hard and noisy. It is also no little convenience to users of belt drive roller mills, not to be re-

more, there being eight tools spaced diametrically opposite one another, each serves as a support to the other, thus relieving each from an unnatural and injurious strain.

Besides being used as a corrugator, this machine is very efficient as a means for scraping off old rolls before grinding, which

makes a marked saving in emery wheels.

The most prominent merit of this corrugator is the quantity of work which can be accomplished with it. Six rolls can be cut per day by a good live man, on rolls not coarser than 16 per inch, and the workmanship be correct."

The manufacturers further say: "We do not claim the Messer Corrugator is cheaper than others now in use, but we do claim that its increased first cost is more than counterbalanced by the superiority of its merits.

The Messer Corrugator, though in constant practical use for seven months past, has only lately been placed on the market, and we must say, has received a very flattering reception from the very best firms in the country."

For full particulars address: Messer & Aldrich, Beloit, Wis.

BOARD OF TRADE CONTRACTS.

The Supreme Court of Iowa has been wrestling with the question of Board of Trade contracts, and its decision is in the general line of other court decisions on the same subject. It holds that gambling contracts are void, and that a mutual understanding that a deal or transaction was to be settled, not by delivering the property involved, but by the payment of difference between the contract price and the market price of the commodity, made it such a contract. They hold, in addition, however, that what one party to the contract might declare to be its intent and purpose, is not evidence of such a mutual understanding as is indicated in the rule. In other words, one party to a Board of Trade deal can not evade its obligations by pleading the 'baby act, unless he can prove that the other party understood it as he did to be a gambling transaction.

In this case, J. N. Green, President of the Oskaloosa Packing Company, gave the notes of the company to Stiles, Goldy & McMahon, a Chicago Board of Trade firm, to reimburse them for margins advanced on 600,000 pounds of short ribs, which they had purchased on the Oskaloosa Company's account, in accordance with his order. The notes were discounted, or at least were held by the First National Bank of Lyons, Iowa—and, not being paid, suit was brought by the bank. In the lower court, where this suit was tried as to the facts, the jury found in their verdict that neither Green nor the Chicago firm, as a party to the short ribs deal, contemplated that there was to be an actual delivery of the property. Considerable correspondence between the parties appeared in the testimony, and this fact was made very clear on its face. The court therefore held that the transaction was a gambling contract, and that the note was void. This is the judgment affirmed by the Supreme Court in its decision.

In their decision, however, the Court affirm that it must appear by the preponderance of evidence that both parties understood it to be a gambling contract; the understanding of one party does not so taint a deal with the gambling element as to render it fraudulent and void. They clinch this doctrine by holding that a party to the contract is incompetent to testify as to his intentions in entering upon it.

This would appear to be sufficient grounds for the protection of ordinary Board of Trade transactions. In Wisconsin a law has been enacted affirmatively declaring that in order to constitute a gambling contract it must appear in proof that both parties considered that differences only were to be paid, and no property was to be delivered. In the Iowa case the Chicago firm furnished the strongest evidence against itself in its books and in its correspondence with Green. The moral of this case, like that in most cases, lies on the surface. Board of Trade firms should have transactions appear straight on their books, and should not give themselves away in compromising letters.—Chicago Journal.

FLOUR MILLS FOR SALE.

Short advertisements will be inserted under this head for One Dollar each insertion.

A three-run four foot Stones, set Porcelain Rolls, Purifiers, &c. Good location Terms easy. For full particulars address Rondebush & Co., Chehalis, Lewis Co., Wash. Ter.

GANZ & CO.,

Budapest, Austria-Hungary.

We are the first introducers of the Chilled Iron Rollers for milling purposes, and hold Letters Patent for the United States of America. For full particulars address as above.
[Mention this paper when you write to us.]

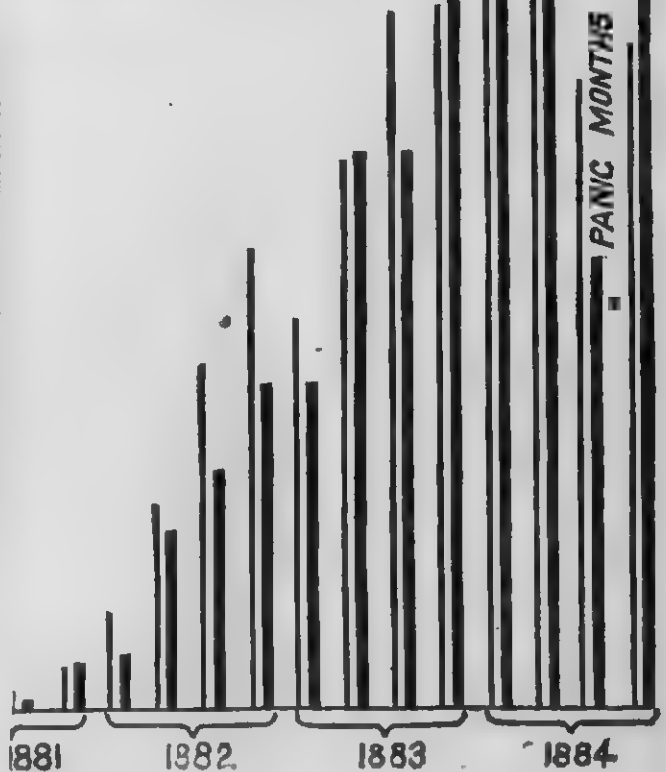
THE WESTINGHOUSE ENGINE.

SOME FACTS.
Up to May 1st, '85, TWENTY-ONE PER CENT. of our sales have been bona fide REPEATED ORDERS (2 to 12) from actual users (not agents) and do not include about twenty-five exchanged engines, all of which are counted as single sales. About half of the exchanges were from defective engines,—the balance for increased power or automatic cut-off, the difference being paid in many cases. From 800 to 1000 have displaced other engines. On the contrary, we know of but three parties, who, having bought our Westinghouse Engine, have failed to give us their subsequent orders. We have learned of but six second-hand engines being offered for sale, all of which were either from fire or failure. Nine engines (our earliest) were thrown out altogether. This is our record with about 1500 engines running. Send for Illustrated Circular and Reference List.

Chart showing the quarterly increase of our business.

Heavy lines are Horse Power.

Light Lines, number of Engines.



The Westinghouse Machine Co.,

PITTSBURGH, PA.

SALES DEPARTMENT CONDUCTED BY

WESTINGHOUSE, CHURCH KERR & CO.,	17 Cortland Street, New York.
FAIRBANKS, MORSE & CO.,	Chicago, Cincinnati, Cleveland, Louisville and St. Paul.
FAIRBANKS & CO.,	St. Louis, Indianapolis and Denver.
PARKE & LACY,	San Francisco, and Portland, Oregon.
PARKE, LACY & CO.,	Salt Lake City, Utah, and Butte, Montana.
D. A. TOMPKINS & CO.,	Charlotte, N. O.
KEATING IMPLEMENT & MACHINE CO.,	Dallas, Texas.
ROBERT MIDDLETON,	Mobile, Ala.
H. DUDLEY COLEMAN,	9 Perdido St., New Orleans, La.
IMRAY & CO.,	Sydney and Melbourne, Australia.
R. ROGERS,	48 Rue Laftte, Paris.
F. E. AVERILL,	Delft, Holland.

[Please mention the UNITED STATES MILLER when you write to us.]

CUT OUT THIS PAGE,
Fill Out and Return Promptly!

For it is of as much, if not of more, interest to you as to us.

—OFFICE OF—

Cawker's American Flour Mill Directory

—AND—

THE UNITED STATES MILLER.

MILWAUKEE, WIS., August, 1885.

TO OWNERS OF FLOURING MILLS:

*We desire to revise and correct our list of **Flour Mill Owners**, and therefore beg that you will answer the questions below by **return mail**. This list is used for the purpose of reaching flour mill owners by mill furnishers, engine and water wheel builders, flour and grain brokers, city bakers, insurance companies, publishers of milling papers, and in short by manufacturers of and dealers in everything used in or about a flour mill. You will therefore perceive that it is of great value to **you** to be properly entered in our list. If you are not already a subscriber to the **United States Miller**, we trust you will order your name entered on our subscription list at once. We have sent you sample copies of the paper at various times, and we think that you will certainly admit that it is worth the small sum of a **dollar a year**. We want you for regular subscribers, but whether you do subscribe for the **United States Miller** or not, **DO NOT FAIL TO ANSWER OUR QUESTIONS** by return mail.*

What is the name of proprietor, or firm, and name, if any, of mill?

Name..... Post Office.....

County..... State.....

Do you use water or steam power?

How many barrels of wheat flour can your mill make in 24 hours if you run up to full capacity?.....

Do you use the Roller or Stone system, or both.....

Do you make a specialty of making rye flour, corn-meal, oat-meal, buckwheat, or hominy?.....

Please enclose your business card and oblige us with the names of all mill owners who receive their mail at your post-office, and give us any information that will tend to make our work perfect.

Cut out this Blank--Fill it out Plainly--And Send it

With the proper amount of money, addressed plainly, to E. HARRISON CAWKER, Publisher, No. 124 Grand Avenue, Milwaukee, Wis. Remit by Registered Letter, Postal Note, Post Office Money Order, Express Money Order, or Draft on New York, Chicago or Milwaukee. Read our Combination offer below, carefully.

Publisher UNITED STATES MILLER:

Enclosed find \$ for which send the UNITED STATES MILLER

for year and

(Insert here Name of any other Papers or Books desired.)

Address Name.

Post Office.

County.

State.

THE UNITED STATES MILLER SHOULD BE KEPT IN EVERY OFFICE HAVING ANY INTEREST IN THE MILLING INDUSTRY.

For One Dollar, we will send THE UNITED STATES MILLER for one year and ONE copy, postpaid, of either of the following useful and entertaining books, viz: Ropp's Calculator; Ogilvie's Popular Reading; Ogilvie's Handy Book of Useful Information; Fifty Complete Stories by Famous Authors; The Great Empire City, or High and Low Life in New York.

For \$1.00 will send the UNITED STATES MILLER for one year and Webster's Practical Dictionary, or for \$2.25 will send the paper for two years and the Dictionary.—For \$2.75 will send the UNITED STATES MILLER for one year and Moore's Universal Assistant and Complete Mechanic.—For \$3.25 will send the UNITED STATES MILLER for one year and Dr. Cowan's Science of a New Life. A very valuable book which every man and woman should read.—For \$1.50 will send the UNITED STATES MILLER for one year and "Everybody's Paint Book," recently published.—For \$1.25 we will send the UNITED STATES MILLER for one year and "The Fireman's Guide, a Handbook on the Care of Boilers." In the following list, the figures to the left of the name of each paper indicate the regular subscription price of that paper, and the figure to the right, the combination price for the UNITED STATES MILLER for One Year and the paper specified.

CLUB LIST. THE UNITED STATES MILLER, WITH

Subscription price of each paper named below:	ONE YEAR.	Subscription price of each paper named below:	ONE YEAR.	Subscription price of each paper named below:	ONE YEAR.
\$2.00 Northwestern Miller.....	\$2.50	\$1.25 Chicago Weekly Times.....	\$2.10	\$1.00 Inter-Ocean, Chicago.....	\$2.00
1.00 American Miller.....	1.50	1.00 Chicago Weekly Tribune.....	2.00	2.00 Mechanical Engineer.....	2.50
1.50 London Miller.....	2.50	5.00 Turf, Field and Farm.....	5.50	1.00 Mechanical News.....	2.00
1.00 Millstone.....	1.50	1.00 Miller Journal.....	1.50	1.50 Milling World, (Weekly).....	2.00
1.00 Modern Miller.....	1.50	1.00 St. Louis Globe Democrat.....	2.00	1.00 Miller's Review, (with four trier).....	1.75
4.00 Hints on Mill Building(book).....	4.00	1.00 Boston Globe Democrat.....	2.00	3.00 New York Weekly.....	3.25
3.20 Scientific American.....	3.50	5.00 Bradstreet's.....	4.50	1.00 Post-Dispatch, (St. Louis).....	2.00
1.50 American Agriculturalist.....	2.00	4.00 Frank Leslie's Chimney Corner.....	4.25	3.00 St. Nicholas.....	3.50
4.00 Harper's Magazine.....	4.20	3.00 Frank Leslie's Illustrated News Paper.....	4.25	1.00 Milwaukee Sentinel.....	2.00
4.00 Century Magazine.....	4.50	2.50 Frank Leslie's Popular Monthly.....	3.15	1.00 New York Sun.....	2.00
2.50 American Machinist.....	3.20	4.50 Harper's Weekly.....	4.10	1.00 New York World.....	2.00
1.00 Millwright and Engineer.....	1.50	4.00 Harper's Bazar.....	4.10		
1.00 Deutsch-Amerikanische Mueller.....	1.50	2.00 Harper's Young People.....	2.75		

WE WILL GIVE CORRESPONDINGLY LOW RATES ON ANY OTHER PUBLICATION THE SUBSCRIBER MAY DESIRE.

ADDRESS,

E. HARRISON CAWKER,

N. B.—In writing for advertising rates, please state amount of space desired and length of time advertisement is to run.

Publisher United States Miller, No. 124 Grand Ave., Milwaukee, Wis.

Mill For Sale or For Rent Ads., \$1.00 per insertion. Situation Wanted Ads., 50 cents per insertion.

EVERYONE IN CHARGE OF A BOILER SHOULD HAVE A COPY.

THE FIREMAN'S GUIDE.

A HANDBOOK ON

THE CARE OF BOILERS.

By Teknologforeningen T. I., Stockholm. Translated from the Third Edition, and Revised BY KARL P. DAHLSTROM, M. E.

The following are the titles of articles in this book:
After starting the Fire; Alarm Whistle; Arrangements for Ascertaining the Water-line; Best time to Blow out; Blowing Out Partially; Blowing Out Totally; Care of the Boiler when not in Use; Care of the Fire; Care of the Fire during short Stops in the Work; Causes of Foaming; Cleaning Out; Cleaning the Boiler; Cleaning the Grate-bars and Ash-pan; Decreasing the Draft, etc.; Defective Feeding Apparatus; Do not Stir the Fire; Dry Fuel; False Water-line; Feeding; Fire and Clean Out Rapidly; Firing into Two or more Furnaces; Formation of Scale; Fuel on the Grate; How to prevent Accidents; Loss of Heat; Low Water; Precautions before Starting a Fire; Precautions as to Closing the Dampers, etc.; Precautions when the Water is low; Precautions on Drawing the Fire; Progress of Firing; Proper Firing; Refilling the Boiler; Regulating the Draft; Repairs; Safety Plug; Safety Valves; Smoke from the Chimney; Steam Pressure; Test in the Boiler; The Float; The Gauge Cocks and Glass Gauge; The Steam Gauge; The Water; The Water-line; To Examine the State of the Boiler; Trimming and Cleaning outside.

Flexible cloth, price 50 cents, sent free by mail on receipt of price, or a copy of the United States Miller for one year and the book for \$1.25. Address all orders to HARRISON CAWKER, PUBLISHER U. S. MILLER, Milwaukee, Wis.

Spon's * Mechanics' * Own * Book.

A MANUAL FOR HANDICRAFTSMEN AND AMATEURS.

Now Ready. Containing 702 pages, 8vo. cloth, with 1420 illustrations.

The title of this work almost suffices to indicate the character of the contents. The various mechanical trades that deal with the conversion of wood, metals and stone into useful objects are explained from an every-day practical view.

The method of treatment of each branch is scientific, yet simple. First in order comes the raw material worked upon, its characters, variations and suitability. Then the tools used in working up the material are examined as to the principles on which their shape and manipulation are based, including the means for keeping them in order, by grinding, setting, handling and cleaning. A third section, where necessary, is devoted to explaining and illustrating typical examples of the work to be executed in the particular material under notice. Thus the book forms a complete guide to all the ordinary mechanical operations; and whilst professional workmen will find in it many suggestions as to the direction in which improvements should be aimed at, amateur readers will be glad to avail themselves of the simple directions and ingenious devices by which they can in a great degree overcome the disadvantage of a lack of manipulative skill. Price \$2.50 postpaid. Address

E. HARRISON CAWKER, PUBLISHER U. S. MILLER, Milwaukee, Wis.

HASWELL'S

Engineers' Pocket Book.

NEW EDITION.

Enlarged and Entirely Re-written.

From New Electrotype Plates.

Mechanics' and Engineers' Pocket-Book of Tables, Rules, and Formulas, pertaining to Mechanics, Mathematics and Physics, including Areas, Squares, Cubes, and Roots, etc.; Logarithms, Steam and the Steam Engine, Naval Architecture, Masonry, Steam Vessels, Mills, etc.; Limes, Mortars, Cements, etc.; Orthography of Technical Words and Terms, etc., etc.; FORTY-FIFTH EDITION, Revised and Enlarged. By CHARLES H. HASWELL, Civil, Marine and Mechanical Engineer, Member of Am. Soc. of Civil Engineers, Engineers' Club of Philadelphia, N. Y. Academy of Sciences, Institution of Naval Architects, England, etc. 12mo. Leather, Pocket-Book Form, \$4.00.

"I cannot find words to express my admiration of the skill and industry displayed in producing the same. To you belongs the honor of having presented to the world a book containing more POSITIVE information than was ever before published. I could with justice say more."—Extract from a Letter to the Author from Capt. John Ericsson, the celebrated Engineer.

The above work sent by mail, postage prepaid, to any part of the United States or Canada, on receipt of the price.

Address E. HARRISON CAWKER, Publisher of the UNITED STATES MILLER, No. 124 Grand Av., Milwaukee, Wis.

OGILVIE'S HANDY BOOK

OF USEFUL INFORMATION,

and Statistical Tables of Practical Value for Mechanics, Merchants, Editors, Lawyers, Printers, Doctors, Farmers, Lumbermen, Bankers, Bookkeepers, Politicians, and all classes of workers in every department of human effort, and containing a compilation of facts for reference on various subjects, being an epitome of matters Historical, Statistical, Biographical, Political, Geographical, and of General Interest.

No more valuable book has ever been offered containing so much information of practical value in everyday life. The following TABLE OF CONTENTS will give some idea of its value:

American Geographical Names, with their Derivation and Signification; Abbreviations in Common Use and their Signification; American History, Chronological Table of; Alphabet Deaf and Dumb; Area, Population, and Debts of Principal Countries of the World; Animals, Powers of Locomotion of; Alcohol, Percentage of in various Liquors; Animals, Duration of Life of; Biographical Register; Business Vocabulary; Board and Timber Measure; Brass, Weight of; Brokers' Technicalities; Capital, the use of; Coins of United States; Weight of; Distances to Various Parts of the World; Food, Warmth and Strength Derived from; Food, Percentage of Nourishment in; Grains, Vegetables, and Fruits, Comparative Yield of; Holidays Legal, in United States; Information for Business Men; Interest Tables; Iron Cast, Tables of; Iron Bar, Tables of; Iron Sheet, Tables of; Iron Plate, Tables of; Logs Reduced to Board Measure; Lead Pipe, Sizes and Weights; Lengths, Scripture, Measure of Moulders' Tables; Medical Department; Mythological Dictionary; Musical Terms, Dictionary of; Mountains, Highest in the World; Money, Roman; Monuments, Towers, and Structures, Height of; Measures, Scripture, Capacity of; Names Popularly Given to States, Cities, etc.; Nautical Vocabulary; Ocean, Area of; Punctuation, Marks and Rules of; Parliamentary Rules and Usages; Paper, Sizes of; etc.; Population of Principal Cities in the United States; Precedents of the United States; Plank and Board Measure; Proof correcting, Rules of; Rivers Lengths of; Ready Reckoner; Spelling, Simple Rules for; Seas of the World; Screws, Thread; Steel, Tables of; Substances, Various, Expansion, Heat, and Conducting Power of; Snow, Perpetual Limit of; Table of Weights and Measures; Time, Division of; Timber and Board Measure; Titles in Use in the United States; Useful Items for Daily Remembrance; Wood and Bark Measurement, Wood and Bark, value of; Weights and Measures, Metric System of Weights and Measures, Tables of Wood, Comparative Weight of.

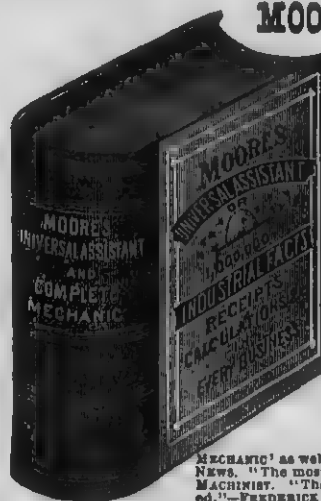
The book contains 128 pages and is handsomely bound. We guarantee perfect satisfaction in every respect. Price Fifty cents per copy.

We will send a copy of Ogilvie's Handy Book and the UNITED STATES MILLER for one year for One Dollar postpaid to any address in the United States or Canada. Address E. HARRISON CAWKER, Publisher UNITED STATES MILLER, Milwaukee, Wis.

MOORE'S UNIVERSAL ASSISTANT

and Complete Mechanic;

Contains 1016 Pages, 500 Engravings, and over 1,000,000 Industrial Facts, Calculations, Receipts, Processes, Trade Secrets &c., in every business.



For sterling Value, Elegance, and Low Cost, this Work has no Competitor in the English Language. What Others Say:—"A regular condensed Universal Encyclopedia containing processes, rules, &c. in over 200 different trades and occupations with Tables for all possible calculations."—MANUFACTURER AND BUILDER. Forms COMPLETE TABLES on the different subjects.—SCIENTIFIC AMERICAN. "The information given is worth ten times its cost."—ED. WEST M'G. "Should have a place on the shelf in every library."—CAN. MECHANIC'S MAGAZINE. The "UNIVERSAL ASSISTANT" is a reference library in itself.—AMERICAN GROCER. "Contains information on almost every subject under the sun."—GRANGE VISITOR. "It is crammed full of solid information on all the practical affairs of life."—WEST FARMER. "Is of itself an ample, pleasing and useful study for the whole winter."—M. D. PARKER. "A reliable work, would willingly pay \$10 for it if necessary."—H. DINKIN. "Gives information of great value to every Engineer, Mechanic and Artisan."—AM. MILLER.

This may be called the Book of Wonders, for it has a compilation of information from all avenues of knowledge. How hard else can such a mine of intellectual wealth be found; should be in every household; certainly in every office and workshop.—KANSAS CITY TIMES.

"We most heartily commend the 'UNIVERSAL ASSISTANT AND COMPLETE MECHANIC' as well high indispensable to any Miller, Farmer or business man."—LEVEE'S NEWS. "The most complete and valuable of any work of its kind we have ever seen."—AM. MACHINIST. "The Complete Mechanic" is the best and cheapest work of its class published."—FREDERICK KIPP, Engineer. Sample Copy by mail for \$2.50.

A new and Revised Edition of this Invaluable Work has just been issued, containing a complete Index, which increases its value ten fold. It is really a \$10.00 book for \$2.50. Price in Cloth binding \$2.50. We will send the above book post paid, and a copy of the UNITED STATES MILLER for one year, for \$2.75, to any address in the United States or Dominion of Canada. Address all orders to E. HARRISON CAWKER, Publisher, No. 124 Grand Avenue, Milwaukee, Wis.

A BOOK YOU WANT!

The Science of a New Life.

BY JOHN COWAN, M. D.

A graduate of one of the oldest chartered Colleges in America, viz: The College of Physicians and Surgeons of New York City.

The ancients were ever longing and searching for an *Elixir Vitæ*—the Water of Life—a draft which would enable you to live forever. "THE SCIENCE OF LIFE" will unfold to you a better elixir than the ancients ever dreamed of in their wildest flights of imagination; for, although it will not enable you to live forever, yet its pages contain information that, if heeded and obeyed, will endow you with such a measure of health, strength, purity of body and mind, and intense happiness, as to make you the envied of mankind—a MAN among men, a WOMAN among women.

Men of influence, position, of high attainments, widely known throughout the world as ministers, authors, physicians, etc., certainly would not so warmly endorse "THE SCIENCE OF A NEW LIFE" as they have done if it were not of sterling merit. Besides the names here given, of such as have so commended the work, the publishers have letters from other eminent men, whose names, for want of space, we cannot publish. Francis E. Abbott, Editor "Index", Boston; Rev. Wm. R. Alger, Boston; Rev. E. H. Chapin, D. D., Ed. "Christian Leader", New York; "Jennie June" Croly, Ed. "Democrat's Mag.", New York; Rev. W. T. Clarke, "The Daily Graphic", New York; Rev. Warren R. Cudworth, Boston; Rev. Charles F. Deems, D. D., Ed. "Christian Age", Church of the Strangers; Judge J. W. Edmonds, New York; Rev. O. B. Frothingham, New York; Mrs. Francis Dana Gage, New York; Wm. Lloyd Garrison, Boston, Mass.; Rev. Geo. H. Hepworth, "Church of Disciples", New York; Oliver Johnson; Dr. Dio Lewis, Boston, Mass.; Mrs. Clemence S. Lozier, M. D., Dean of the Medical College for Women; Gerald Massey, Poet and Lecturer, England; D. D. T. Moore, Ed. "Rural New Yorker", New York; Rev. W. H. Murray, Boston, Mass.; Hon. Robert Dale Owen; James Parton, New York; J. M. Peebles, Ex-U. S. Consul; Wendell Phillips, Boston, Mass.; Parker Pillsbury; Rev. T. De Witt Talmage, Ed. "Christian at Work"; Theodore Tilton; Moses Colt Tylor; Mrs. Caroline M. Severance, W. Newton, Mass.; Hon. Gerrit Smith; Mrs. Elizabeth Cady Stanton, New York; Dr. H. R. Storer, Boston, Mass.

"In a careful examination of Dr. Cowan's 'SCIENCE OF A NEW LIFE', I am prepared to give it my very cordial approval. It deserves to be in every family, and read and pondered, as closely relating to the highest moral and physical well-being of all its members. *** May it be circulated far and wide."—WILLIAM LLOYD GARRISON.

"It seems to us to be one of the wisest and purest and most helpful of those Books which have been written in recent years, with the intention of teaching Men and Women the Truths about their Bodies. *** No one can begin to imagine the misery that has come upon the human family through ignorance upon this subject."—THE CHRISTIAN UNION.

"THE SCIENCE OF A NEW LIFE" is printed from beautiful clear, new type, on fine calendered tinted paper, in one volume of over 400 octavo pages, containing 100 first-class engravings, and a fine steel-engraved front piece of the author. We will send a copy of "THE SCIENCE OF A NEW LIFE" bound in cloth, bevelled boards, gilt back and side stamp, and copy of the UNITED STATES MILLER for one year, post paid, for \$3.25, or the book only for \$3.00, to any address in the world. Remit by postal order, postal note, registered letter or bank draft on New York, Chicago or Milwaukee. Address all communications and make all remittances payable to order of E. HARRISON CAWKER, Publisher of the UNITED STATES MILLER, No. 124 Grand Avenue, Milwaukee, Wis.

Practical Books for Practical Men.

ADAPTED TO THE WANTS OF ALL.

IF you want any books to aid you in your business, consult the following list. If there is any other book you want, not on this list, send the title of the book to us with the name of author if possible, and we will supply it at publishers' lowest price, post-paid, to any address in the world. If you desire books sent by mail REGISTERED, enclose 10 cents additional to price of each book. All orders filled promptly. Remit by Post Office Money Order, Express Money Order, Registered Letter, or Bank Draft on New York, Philadelphia, Chicago or Milwaukee. Make all orders payable to

E. HARRISON CAWKER,

Publisher of the "United States Miller," No. 124 Grand Ave., Milwaukee, Wis.

The Principles of Mechanism and Machinery of Transmission.

Comprising the principles of mechanism, wheels, and pulleys, strength and proportion of shafts, coupling of shafts, and engaging and disengaging gear. By WILLIAM FAIRBAIRN. Beautifully illustrated by over 150 wood-cuts. In one volume, 12mo.....\$2 50

American Miller and Millwright's Assistant.

By WM. CARTER HUGHES. A new edition, in one volume. 12mo.....\$1 50

Lukin.—The Young Mechanic.

Practical Carpentry. Containing directions for the use of all kinds of tools, and for construction of steam engines and mechanical models, including the art of turning in wood and metal. By JOHN LUKIN. Illustrated. 12mo. \$1 75

Lukin.—Amongst Machines.

Embracing descriptions of the various mechanical appliances used in the manufacture of wood, metal, and other substances. 12mo.....\$1 75

Lukin.—The Boy Engineer.

What they did, and how they did it. With 30 plates. 18mo.....\$1 75

Leffel.—On the Construction of Mill Dams.

Comprising also the building of race and reservoir embankments and head gates, the measurement of streams, gauging of water supply, etc. By JAMES LEFFEL & CO. Illustrated by 53 engravings. 1 vol. 8vo.....\$1 50

The Indicator and Dynamometer.

With their practical applications to the steam engines. By THOMAS J. MAIN, M. A. F. R. Ass't Prof. Royal Naval College, Portsmouth, and THOMAS BROWN, Assoc. Inst. C. E., Chief Engineer R. N., attached to the R. N. College. Illustrated. From the Fourth London Edition. 8vo.....\$1 50

Questions on Subjects Connected with the Marine Steam Engine.

An examination paper; with hints for their solution. By THOMAS J. MAIN, Professor of Mathematics, Royal Naval College, and THOMAS BROWN, Chief Engineer, R. N. 12mo., cloth.....\$1 50

The Marine Steam Engine.

By THOMAS J. MAIN, F. R. Ass't S. Mathematical Professor at the Royal Naval College, Portsmouth, and THOMAS BROWN, Assoc. Inst. C. E., Chief Engineer, R. N. Attached to the Royal Naval College. Authors of "Questions connected with the Marine Steam Engine," and the "Indicator and Dynamometer." With numerous illustrations. In one vol. 8vo.....\$5 00

Mechanics' (Amateur) Workshop.

A treatise containing plain and concise directions for the manipulation of wood and metals, including casting, forging, brazing, soldering and carpentry. By the author of "The Lathe and its Uses." Third edition. Illustrated. 8vo. \$3 00

Molesworth's Pocket Book of Useful Formulae and Memoranda for Civil and Mechanical Engineers.

By GUILFORD L. MOLESWORTH, Member of the Institution of Civil Engineers, Chief Resident Engineer of the Ceylon Railway. Second American, from the Tenth London Edition. In one volume, full bound in pocket-book, \$1 00

Nystrom's New Treatise on Elements of Mechanics.

Establishing Strict Precision in the Meaning of Dynamical Terms: accompanied with an Appendix on Duodenal Arithmetic and Metrology. By JOHN W. NYSTROM, C. E. Illustrated. 8vo.....\$3 00

Pallett.—The Miller's, Millwright's, and Engineer's Guide.

By HENRY PALLETT. Illustrated. In one vol. 12mo.....\$3 00

The Practical American Millwright and Miller.

By DAVID CRAIK, Millwright. Illustrated by numerous wood engravings, and two folding plates. 8vo.....\$5 00

Catechism of the Marine Steam-Engine.

For the use of Engineers, Firemen, and Mechanics. A practical work for practical men. By EMORY EDWARDS, Mechanical Engineer. Illustrated by sixty-three engravings, including examples of the most modern engines. Third edition, thoroughly revised, with much additional matter. In one volume, 12mo. 414 pages.....\$3 00

The Practical Steam Engineer's Guide.

In the design, construction and management of American Stationary, portable, pumping, and steam fire-engines, boilers, injectors, etc. For the use of Engineers, Firemen and Steam Users. By EMORY EDWARDS, author of "Catechism of the Marine Steam-Engine," "Modern American Marine Steam-Engines," etc. Illustrated by about 100 engravings. In one volume of about 550 pages. 12mo.....\$3 50

Practical Rules for the Proportions of Modern Engines and Boilers for Land and Marine Purposes.

By N. P. BURCH, Engineer. 12mo.....\$1 50

Recent Improvements in the Steam-Engine.

In its various applications to mines, mills, steam navigation, railways and agriculture. Being a supplement to the "Catechism of the Steam-Engines." By JOHN BOURNE, C. E. New Edition. With numerous illustrations. 16mo. Cloth.....\$1 50

A Practical Treatise on Mechanical Engineering.

Comprising metallurgy, moulding, casting, forging, tools, workshop, machinery, mechanical manipulation manufacture of steam-engines, etc., etc. With an appendix on the analysis of iron and iron ores. By FRANCIS CAMPBELL, C. E. To which are added, Observations on the Construction of Steam Boilers and Remarks upon Furnaces used for smoke prevention; with a chapter on explosions. By E. ARMSTRONG, C. E., and JOHN BOURNE. Rules for calculating the change wheels for screws on a turning lathe, and for a wheel-cutting machine. By J. LA NICOLA. Management of steel, including forging, hardening, tempering, annealing, shrinking and expansion. And the case-hardening of iron. By G. EDS. 8vo. Illustrated with 29 plates and 100 wood engravings.....\$5 00

The Practical Draughtsman's Book of Industrial Design, and Machinists and Engineer's Drawing Companion.

Forming a complete course of Mechanical Engineering and Architectural Drawing. From the French of M. Armand the elder, Prof. of Design in the Conservatoire of Arts and Industry, Paris, and M. Armand the younger, and AMOROUX, Civil Engineers. Rewritten and arranged with additional matter and plates, selections from and examples of the most useful and generally employed mechanism of the day. By WILLIAM JOHNSON, Assoc. Inst. C. E., Editor of "The Practical Mechanic's Journal." Illustrated by fifty folio steel plates, and fifty wood-cuts. A new addition 4to, half morocco.....\$10 00

The Construction and Management of Steam Boilers.

By E. ARMSTRONG, C. E. With an Appendix by ROBERT MALLER, C. E., F. R. S. Seventh Edition. Illustrated. 1 vol. 12mo.....75

Carpentry Made Easy.

Or, the science and art of framing on a new and improved system, with specific instructions for building balloon frames, barn frames, mill frames, warehouses, church spires, etc. Comprising also a system of bridge building, with bills, estimate of cost, and valuable tables. Illustrated by forty-four plates, comprising nearly 200 figures. By WILLIAM E. HELL, Architect and Practical Builder. 8vo.....\$5 00

The Complete Practical Machinist.

Embracing lathe work, vice work, drills and drilling, taps and dies, hardening and tempering, the making and use of tools, etc., etc. By JOSUA ROSS. Illus. by 150 engravings. 1 vol. 12mo., 376 pages.....\$3 50

The Slide-Valve Practically Explained.

Embracing simple and complete practical demonstrations of the operation of each element in a slide-valve movement, and illustrating the effects of variations in their proportions by examples carefully selected from the most recent and successful practice. By JOSUA ROSS, M. E., Author of "The Complete Practical Machinist," "The Pattern-maker's Assistant," etc. Illustrated by 35 engravings.....\$1 00

Roper's Practical Hand-books for Engineers.

"Hand-Book of Land and Marine Engines," \$3 50. "Hand-book of the Locomotive," \$3 50. "Catechism of High-Pressure Steam Engines," \$3 00. "Use and Abuse of the Steam Boiler," \$2 00. "Engineer's Handy-Book," \$3 50. These books embrace all branches of steam engineering—stationary, locomotive, fire and marine. Any engineer who wishes to be well informed in all the duties of his calling, should provide himself with a full set. They are the only books of the kind ever published in this country, and they are so plain that any engineer or fireman that can read can easily understand them.

Moore's Universal Assistant.

A Hand-book of fifty thousand industrial facts, processes, rules, formulae, receipts, business forms, tables, etc., in over two hundred trades and occupations. Together with full directions for the cure of Disease and the maintenance of health. By R. MOORE. A new revised edition, Illustrated, \$3 50-

AMERICAN WORKMEN THE BEST IN THE WORLD.—Those who have defended the privilege of importing (passage prepaid) foreign workmen under the belief that it confers a great boon upon manufacturers in obtaining cheap labor, will do well to read the following extract from the *New Haven News*, which relates a bit of experience in importing foreign workmen.

About four years ago, Col. Farry, President of the Bridgeport Cutlery Company, while on a tour through Europe visited many of the cutlery establishments in Germany, at Hamburg, and in England. The manufacture of razors being in a primitive state in this country, he decided that he could do no better than to bring over some of the workmen to the United States. The workmen in Sheffield, England, were, as a rule, members of the trades unions, and Col. Farry had considerable difficulty in engaging the men whom he wanted. A few months later he had the satisfaction of seeing forty of them with their families sail for this country, accompanied by the secretary of the trades union. In Germany and Hamburg he engaged sixty men, and at once shipped them and their families to this country. Separate rooms were fitted up for the newly arrived razor makers in the shops at Bridgeport, the Germans being in one part of the works and the English in the other. Col. Farry said: "I had a great deal of trouble with my men at first. I did not have nearly as much trouble with the Germans as with the English. The latter demanded a separate work-room apart from all the other workmen in the factory. If one of the men in my employ wanted to

enter the room while they were at work they would throw down their tools and would not resume their labors until the visitor had closed the door behind him. I was the only man in the entire shop whom they would let into the room without stopping work. A peculiar feature about them was that they would not work after 12 o'clock noon Saturdays. Whatever money was left after buying the week's supply, the men would go on a spree with until the last cent was spent, which was usually about Tuesday morning. *American workmen are the best in the world.*"

THE FUTURE OF MILLING IN INDIA. --

The following is an abstract from a recent report of the Austro-Hungarian Consul at Bombay: "The firm of Ganz & Co., of Budapest, have achieved a striking success with their roller mills. This firm sent two skilled engineers to Bombay with some of their machines; a native capitalist offered to set up these machines at his own cost, and to give them a trial. At the end of a few days the imported machinery had been sold, and on this large orders followed quickly. I had urged the advisability of importing machinery of this description, feeling convinced that a great market could thus be opened for an important branch of our home industries, without any fear of raising up a dangerous rival to the milling interests of Hungary. The cultivation of wheat in India is growing apace, and people here are fully alive to the urgency of ampler means for milling. Still flour ground from Indian wheat is not acceptable to European consumers, from its yellow color and peculiar aromatic flavor;

only when mixed with European flour could it be placed on the European market. Indian flour will partly serve for native consumption, and the demand should certainly keep pace with the yearly increase in general prosperity, and will also, in all likelihood, enter into future competition with American flour in the far East.

We have frequently referred to the unreliability of cast iron columns for supports to buildings in case of fire. Not long since at a fire in Berlin the cast iron columns let a building fall, and the authorities forbid the further use of them in building, but allowed wrought iron to be used. Then a Munich architect demonstrated by actual test that cast iron was more reliable than wrought iron. The fact is, that a column built of good brick is reliable as against fire, and is about the only material known that is so. A good oak column probably comes next—at any rate is greatly preferable to either cast or wrought iron. A pillar made of the white oak that grows in what is known as the "slash lands" of the West and South, lathed and plastered, is fire proof, and will last until brick that is kept inside of a building, where the sun's light and warmth never falls upon it, has crumbled into dust.

COLUMBIA College Professor—"As a student of practical mining, what spade do you consider the very best?"
Student—"Why, the ace, of course."
(Suppressed sensation.)

It is difficult to understand why a wife never asks her husband "if the doors are all locked" until after he is snugly covered up in bed.

"DON'T BUY THE CASE MACHINERY!!"

You have heard this from every agent of the Geo. T. Smith Company, who are our bitterest enemies. You have heard from every roll builder in the country who are our competitors, you therefore know that the parties who use the above statement have reasons for it, but

OUR SKIN IS THICK

and we can stand it, so long as we have the substantial evidence by our increasing trade, that the millers are on our side. There is no longer any question of doubt, with all those who have seen our latest improved machinery, that they are the simplest in construction and most perfect in their finish of any line of machinery made in this or any other country. In the last one hundred mills we have built there has been scarcely an instance where a spout or foot of bolting cloth was changed, but the mills have invariably started up successfully from the first day's run. Write us for low estimates. Address,

CASE MFG. CO., COLUMBUS, O.

P. S. A large number of Roll builders are now infringing our Patent Automatic Vibratory Feed for Rolls and Purifiers yet invented, and we caution the Millers against buying machines which embody this Vibratory Attachment, as we intend to protect our rights. **CASE MFG. CO.**

[Please mention this paper when you write to us.]

5 COPIES FOR \$4.00, sent post-paid to any address.

WEBSTER'S PRACTICAL A NEW DEPARTURE IN DICTIONARIES.

An Industrial Revolution.—In a large Connecticut manufacturing establishment there is in operation a new style of furnace which produces more steam-power from a consumption of 1,000 lbs of coal than can be generated from 20,000 lbs burned in the ordinary way. In other words, the new contrivance already saves nineteen-twentieths of the fuel, and it is believed that before being publicly announced it will be so improved that the saving will reach 49 fiftieths! The facts already developed are simply incredible to one who has not actually seen them verified.

A Remarkable Coincidence.—While the new Furnace was in process of construction, the editors and publishers of Webster's Unabridged were engaged upon their new work which is as great an improvement upon all previous Dictionary productions, and just as valuable in its way as is the incredible fuel economizer above alluded to. Webster's Practical is not only a new compilation by the leading Dictionary House of the world, but it embodies several new features which, for ordinary use, render it pre-eminent among dictionaries—not excepting even the Unabridged.

1st, Condensation.—By grouping all derivative and compound words under their root or leader (as in the "Book" example quoted below), such words are adequately treated in one-third of the space required by the old arrangement. By this means nearly all the desirable material of the four and five-dollar dictionaries is presented in a convenient and handy form in Webster's Practical.

2d, Association.—We comprehend as well as remember things chiefly by their associations. For this reason any one who shall carefully read the "Book" paragraph which we reproduce from Webster's Practical Dictionary, will not only comprehend it more readily, but will be able to remember two or three times as much as would be gained by reading about the same words when treated separately as in other works.

3d, Ready Reference.—Not only do we comprehend and remember more readily by the new grouping method, but we do it in less than a fourth of the time required when the words are classified in the old way. Hence, no one who values time would hesitate to pay one dollar for Webster's Practical rather than accept the best of the older dictionaries as a gift.

4th, Derivative Terminations.—Only the larger dictionaries hitherto published give the derivative terminations. The New American Dictionary, for instance, does not give any of the four variations of so common a word as forbear, while they are all given in Webster's Practical.

5th, The Illustrations.—In Webster's Practical are more numerous and better executed than those of any other abridged or low-priced dictionary.

6th, Prefixes and Suffixes.—Another important feature of Webster's Practical is its peculiar treatment of prefixes and suffixes, which is believed to be more desirable than a separate department of two or three hundred pages which is sometimes allotted to them.

7th, Compendium Matter.—Still another invaluable feature of Webster's Practical is its compendium matter, over one hundred pages of which is devoted to the most complete Pronouncing Vocabulary ever compiled of Biblical, Classical, Mythological, Historical and Geographical Proper names. With Webster's Practical Dictionary at hand, one need not be at a loss to correctly pronounce or spell the most difficult words.

8th, An Invaluable Book.—The importance of supplying every child with Webster's Practical for his very own, is not generally appreciated. An educator it is worth a hundred times its price, and a little self-denial to provide one or more copies in every family will prove a better economy than an endowment of hoarded bank-stocks later on in life.

The following paragraph is reproduced from Webster's Practical.

Book, book, n. A collection of sheets of paper, etc., bound together; a literary composition, written or printed; a subdivision of a literary work. (*Mer.*) A volume in which accounts are kept. — *p. 2.* (booked (book), bookish.) To enter, or register in a book. — *Book (ish, u.* Given to reading; more acquainted with books than with men. — *Bookish, n.* One who binds books. — *Bookery, n.* A place for binding, etc. — *binding, n.* Art or practice of, etc. — *case, n.* A case with shelves for holding books. (*Bind.*) A book-cover. — *copy, n.* (*Bind.*) A case for a book; a cover of cloth or other material prepared for casing a book. — *keeper, n.* One who keeps accounts. — *keeping, n.* Art of recording mercantile transactions and keeping accounts. — *learned, -lend, n.* Versed in books; ignorant of life. — *learning, n.* Learning acquired by reading. — *esp. n.* In practical knowledge. — *maker, n.* One who writes and publishes books; a compiler; a sporting man who makes a record of bets. — *making, n.* The practice of, etc.; compilation; systematized betting. — *mark, n.* Something placed in a book by which to find a particular place. — *place, n.* A label indicating ownership, place in a library, etc., usually on the inside of the cover of a book. — *post, n.* The post-office arrangement by which books are mailed. — *seller, n.* One who sells books. — *shelf, n.* A shelf to hold books. — *shop, n.* A place for selling books. — *stand, n.* A stand for selling books in the streets; book-stall; a support to hold books. — *worm, n.* A worm or mite that eats holes in books; one excessively addicted to study.

THE QUANTITY TEST.

(The following exhibits are from the texts of the dictionaries named.)

Webster's Practical Dictionary, (\$1) 600,000 Words and 1,400 Illustrations.
New American Dictionary, (\$1) 240,000 Words and 116 Illustrations.
National Popular Dictionary, (\$1) 240,000 Words and 116 Illustrations.
National Standard Dictionary, (\$1) 210,000 Words and 612 Illustrations.

Quality Test.—Aside from all advantages above alluded to, there is still another and very important feature of the new work to be considered, viz: its quality as compared with the cheap dictionaries which have had the largest sales, and which have been compiled chiefly from the old editions of Webster on which the copyrights have expired. Hence Webster's Practical contains more matter than any other dollar dictionary. Its quality, to say the least, is the very best, while its arrangement and all other new and desirable features, including first-class illustrations, paper, printing and binding are added without extra charge.

A Subscription Book.—As Webster's Practical is not for sale at book-stores, our readers will be able to procure it only from canvassing agents, unless it be ordered in connection with this journal in accordance with our special offers.

Our arrangements with the Sole Agent (S. S. Wood, 134 W. 3rd St., N. Y.) enable us to announce the following Special offers:

For \$1.00 we will send the UNITED STATES MILLER for one year and a copy of WEBSTER'S PRACTICAL, post paid to ANY ADDRESS IN THE WORLD, or for \$2.25 we will send WEBSTER'S PRACTICAL and the UNITED STATES MILLER for 2 years to any address, or we will send 5 copies of WEBSTER'S PRACTICAL to any address for \$4.00. Address all orders to E. HARRISON CAWKER, Publisher of the UNITED STATES MILLER, No. 124 Grand Avenue, Milwaukee, Wis.

Private Telegraphic Cipher

Compiled expressly for the use of

MILLERS, FLOUR AND GRAIN BROKERS,

For private telegraphic correspondence, either for land or cable lines.

This CODE has been approved and is used by many of the best firms in this country and in Europe. It contains Flour Tables, Bran Tables, Middlings Tables, Flour Grades and Brands, Time of Shipment, Dates, Names of Places, American Currency, Sterling Quotations, Table on Limits, etc., Drawing, Credits, etc., Selling, Buying, Orders and Offers, Consignments and Shipments on Joint Account, Miscellaneous, Market Upwards, Market Downwards, Insurance, Shipping and Freight, Shipping by Regular Lines of Steamers, Finance, Bankers' Names, Standing of Firms, Telegraphing, Advances, Commission, Stocks and Crops, Weather, Samples and Quality, Equivalent of Sacks in Barrel Quantities, Commission Tables, Interest Tables, Equivalent Flour Prices in Currency, Sterling, Francs, Guilders, and Marks, Comparative Tables, Sack and Barrel Flour, Ocean Freight Rates (Comparative Table), Sailings from Seaboard (Table), Key to Sailings from Seaboard Table, Foreign Weights and Measures, etc.

We respectfully refer to the following well-known firms: S. H. Spangans (Empire Mills), Sec'y of the Millers' National Association; E. Sanderson & Co. (Phoenix Mills), Milwaukee, Wis.; Daisy Roller Mills, Milwaukee, Wis.; Nunnemacher & Co. (Star Mills), Milwaukee, Wis.; Roots & Co. (Millers), Cincinnati, O.; C. H. Seybt (Miller), Highland, Ill.; Kosmack & Co. (Flour Brokers), Glasgow, Scotland; J. F. Imbs & Co. (Millers), St. Louis, Mo.; E. Schraudenbach, Okauchee Roller Mills, Wis.; Winona Mill Co., Winona, Wis.; and many others.

Name of firm ordering copies printed on title page with cable address, etc., free of charge, making it to all intents and purposes your own Private Cable Code. State number of copies desired when writing; also style of binding preferred.

Address:

The Riverside Printing Co.,

No. 124 GRAND AVENUE, MILWAUKEE, WIS.

EVERYBODY'S PAINT BOOK

A new work on INDOOR and OUT-DOOR painting which is designed to teach people how to CO their OWN PAINTING and save the expense of a professional painter. The most practical and valuable work of the kind ever issued. Full directions are given for mixing paints for ALL PURPOSES. Tells all about SPER HANGING, KALOMINING, STAINING, VARNISHING, POLISHING, as well as how to RENOVATE FURNITURE, so that it will look as good as new. Tells all about HOUSE-CLEANING with paint and furniture. Full directions are given for making the beautiful SPATTER-WORK pictures in which the ladies are so much interested. Tells how to paint OUT-BUILDINGS, ROOFS, FARM WAGONS, FARM IMPLEMENTS and CARRIAGES, as well as how to polish a PIANO or ORGAN; how to imitate GROUND GLASS or make paint for BLACKBOARDS; GRATING in oak and black walnut painting in imitation of EBONY, MAHOGANY and ROSEWOOD stain, GILDING, BRONZING and SILVERING. Elegantly printed, beautifully bound. WILL SAVE ITS COST in a short time. Send by mail on receipt of price. One Dollar.



We will send a copy of the UNITED STATES MILLER for one year, and a copy of "EVERYBODY'S PAINT BOOK," post paid, to any address, for \$1.50. Address E. HARRISON CAWKER, No. 124 Grand Avenue, Milwaukee, Wis.

Music for Millers, their Sisters, Cousins, Aunts and Friends.

THE NATIONAL SONG FOLIO.

The best and handsomest Song Book ever published at any price, containing 225 full size music pages, 78 complete vocal compositions, every one a gem, any two of them worth more than the price of the book, and several of them purchased from the Authors and Composers especially for this work, and never before in print.

The books are elegantly bound in seven colored, lithographed covers, most beautiful in design and execution. We do not mean patent metal or molded mud imitations of Lithography, but the finest production of the most skilled artists in the business. Do not fail to send for a copy.

PRICE IN PAPER COVERS, - - - 50c.
BY MAIL, " " " " " 63c.

THE NATIONAL PIANO FOLIO.

Published in uniform size and style with the National Song Folio, containing 225 pages of choice music for the Piano Forte, consisting of 61 unabridged and well selected Rondos, Fantaisies, Themes, Transcriptions, Nocturnes, Caprices Gavottes and other new and standard compositions, bound in seven colored covers.

Remember, these are not the stale, unsaleable pieces of old foggy publishing houses, but the very best selections, printed from new plates, many of them made especially for this book.

Be sure and order The "National Piano Folio."

PRICE IN HANDSOME CLOTH BINDING, - - - \$1.00
BY MAIL, " " " " " 1.20

THE NATIONAL DANCE FOLIO.

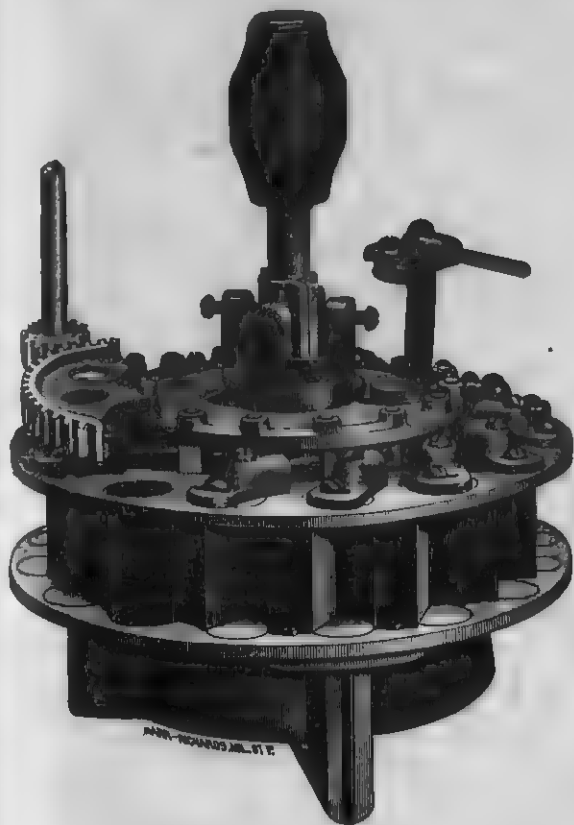
An elegant selection of popular and fashionable PARLOR DANCES. Peculiarly adapted for the use of SOCIAL HOME PARTIES.

Consisting of Quadrilles, Lancers, Galops, Polkas, Waltzes, Contra and Fancy Dances etc. etc.; a splendid collection of the latest approved compositions, together with the old favorite Reels, Hornpipes, Jigs, etc., "Money Musk," "Devil's Dream," "The Tempest," "Cicilian Circle," and others, with call for the different figures.

Printed and bound in same style and size as the National Song and National Piano Folio.

Or, either one of the above books BOUND IN PAPER, and a copy of the UNITED STATES MILLER for \$1.25, or the CLOTH BINDING for \$1.70. Address all orders to E. HARRISON CAWKER, publisher UNITED STATES MILLER, Milwaukee, Wis.

The "Monitor" and "New Northwestern"



WATER WHEELS

THESE Wheels are unexcelled BY ANY IN THE MARKET. WE MAKE NO EXCEPTION. We feel warranted in making this statement after over fifteen years of practical experience in manufacturing and placing Water Wheels. The "MONITOR" or Cylinder Gate, is a first-class wheel where there is plenty of water and is cheaper than the "NEW NORTHWESTERN", but the latter wheel will certainly give entire satisfaction in the most trying position.

Hundreds of Wheels now in Use in the Northwest.

For Illustrated Catalogue with full description, Testimonials, References, List of Parties using our Wheels, etc., address

THE VALLEY IRON WORKS,

APPLETON, WIS.

The "New Northwestern" Water Wheel.

[Please Mention the UNITED STATES MILLER when you write to us.]

INJUNCTION

AGAINST

The Geo. T. Smith Middlings Purifier Co. and Others.
CIRCUIT COURT, MILWAUKEE COUNTY.

ALVA H. KIRK, WILLIAM J. FENDER, SAMUEL L. BEAN,
AND THE GEO. T. SMITH MIDDLEINGS PURIFIER
COMPANY,

Plaintiffs,

vs.

MILWAUKEE DUST COLLECTOR MANUFACTURING COM-
PANY,

Defendant.

IT IS HEREBY ORDERED, that the Injunctive order made in this cause, dated the 6th day of June, 1885, be and the same is hereby continued in force in all respects until the trial and final disposition of the cause.

Dated June 25th, 1885.

By the Court,

CHARLES A. HAMILTON, Circuit Judge.

COTZHAUSEN, SYLVESTER, SCHEIBER & SLOAN,

Attorneys for the Milwaukee Dust Collector Mfg. Co.

FLANDERS & BOTTUM,

Attorneys for Licensees.

AWARD!

The Milwaukee Dust Collector Mfg. Co., have news by Cable that they have received the highest Award above all competitors, a Silver Medal on their Dust Collector, at the Paris Exhibition.



O. A. BYRNS' COMMON-SENSE ROLLER MILLS!

A practical test of over two years proves that these Mills require less power and make more Middlings and less Break Flour than any other Roll in the market.

They are mounted on a strong Iron Frame, and the mechanism is compact, simple and easily adjusted. The accompanying cut shows our Five-Break Mill. Our Three-Break Mill is also giving the best of satisfaction.

Write for Prices and full information.

VALLEY IRON WORKS,

APPLETON, WIS.,

Manufacturers of the Taylor Turbine Water Wheel and of Shafting, Gearing, Pulleys, and General Mill Work.

[Please mention this paper when you write to us.]

GOODRICH PASSENGER STEAMERS

TWICE DAILY EACH WAY

Milwaukee & Chicago.

Fare to Chicago \$2 less than by railroad night trains, and \$1 less than by day trains.

Chicago and Racine Line.

Leave. Arrive.
Milwaukee.....7:30 a. m. | At Milwaukee 5:00 a. m.
Milwaukee.....7:00 p. m. | At Milwaukee 5:00 p. m.

Fare to Chicago Only \$2.

Round Trips, \$3.50, meals and berths included. Sure connections at Chicago with all M. trains for all points East, South and Southwest.

Sheboygan & Manitowish Line.

Daily, except Mondays.

Leave. Arrive.
Milwaukee.....7:30 a. m. | At Milwaukee 5:00 p. m.

Manistee & Ludington Line.

Daily, leave 7 p. m., except Saturdays.

Saginaw & Bay City Line. Daily except Saturdays.

Leave. Arrive.
Milwaukee.....7:30 p. m. | At Milwaukee 5:00 a. m.
Making close connections at Ludington with F & P. M. R. R. for Saginaw, Bay City, Detroit, and all points in Northern Michigan and all points East.

Pierport & Frankfort Line.

Leave Milwaukee daily at 7 p. m., except Saturday.

Kewaunee & Ahnapee Line.

Leave Milwaukee Tuesdays, Thursdays and Saturdays, at 7 A. M.

Menominee & Sturgeon Bay Line.

Tuesdays, Thursdays and Saturdays at 7 A. M.

Green Bay & Escanaba Line.

Leave Milwaukee Tuesdays, Thursdays and Saturdays at 7 A. M., touching at Oconto, Menominee, Sturgeon Bay, Depere, and making close connections with railroad at Escanaba for Nezaunee, Ishpeming, Quinnesec, Norway, and all Lake Superior points.

G. HURSON, Secretary and Agent.

A Two-cent Stamp

sent with your full address to A. V. H. Carpenter, General Passenger Agent, Milwaukee, Wis., will bring you one of the following-named publications, issued for free distribution by the Chicago, Milwaukee & St. Paul Railway. If you desire to know where to spend the summer, ask for a "Guide to Summer Homes" and a copy of the "Gems of the North-west." If you think of going to Omaha, Denver, San Francisco, St. Paul, Minneapolis etc., ask for "A Tale of Nine Cities." If you want to invest in or go to any portion of the Western States or Territories, ask for a copy of our 28-page illustrated pamphlet entitled "The North-west and Far West." All of these publications contain valuable information, which can be obtained in no other way.

THE VICTOR TURBINE

Possesses more than Double the Capacity of other Water Wheels of same diameter, and has produced the Best Results on Record, as shown in the following Tests at Holyoke Testing Flume:

Size of Wheel.	Head in Ft.	Horse-Power.	Per Ct. Useful Effects.
15 inch.	18.06	30.17	.8632
17 1/2 in.	17.96	36.85	.8830
20 inch.	18.31	49.00	.8582
25 inch.	17.90	68.68	.8584
30 inch.	11.65	62.54	.8676

WITH PROPORTIONATELY HIGH EFFICIENCY AT PART-GATE.

SUCH results, together with its nicely-working gate, and simple, strong and durable construction, should favorably recommend it to the attention of ALL discriminating purchasers. These Wheels are of very Superior Workmanship and Finish and of the Best Material. We also continue to manufacture and sell at very low prices the

ECLIPSE DOUBLE TURBINE,

So long and favorably known. State your requirements, and send for Catalogue to the

STILWELL & BIERCE MFG. CO., DAYTON, OHIO, U. S. A.

Send for
Catalogue
and
Prices.



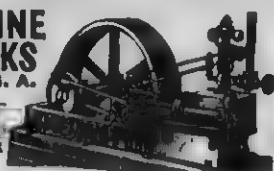
ATLAS ENGINE WORKS

INDIANAPOLIS, IND., U. S. A.

MANUFACTURERS OF

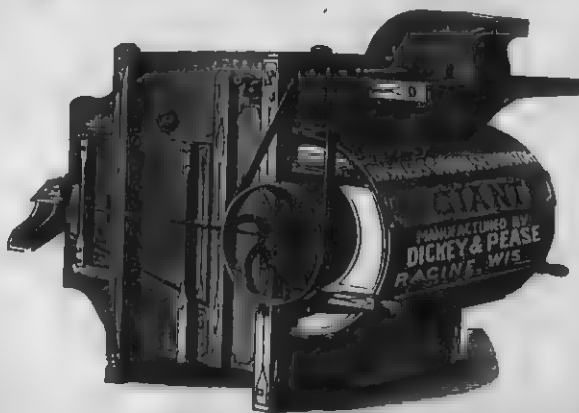
STEAM ENGINES & BOILERS

Carry Engines and Boilers in Stock for immediate delivery.



[Please mention this paper when you write to us.]

"GIANT" DUSTLESS GRAIN SEPARATOR



This Separator commends itself above all others for the following reasons:

1st. It is simple in construction; any one competent to run an ordinary Fanning Mill can operate it.

2d. Its height from the floor to the top of the receiving hopper is but four feet three inches. One of the main objections to other Separator being that their Hoppers are too high up to admit of spouting into them from more than one bin without moving the machine.

The Dust, Chaff, etc., are taken out of the Grain as the latter falls from the Hopper down on the Hurdle or Sieves and is conveyed by spouts out of the doors or into a bin.

The Suction is regulated by Valves so that more or less chaff, light seeds, etc., may be taken out as desired.

This Separator has no equal in separating Oats from Wheat and Barley, and general cleaning of all kinds of Grain.

The "GIANT" is the most complete and at the same time the cheapest machine in the market.

For full description, circulars and prices, address

Satisfaction Guaranteed
for Every One!

DICKEY & PEASE,

SOLE MANUFACTURERS. RACINE, WIS.



NE PLUS ULTRA

FOR PRICES AND PARTICULARS, ADDRESS

GEO. T. SMITH M. P. CO.,

JACKSON, MICH.

[Mention this Paper when you write to us.]

A. BLOEDEL,
Manufacturing
Jeweler & Diamond Setter,
Dealer in
WATCHES, CLOCKS, JEWELRY,
Silver and Plated Ware.

Special Attention Given to Repairing.

No. 106 GRAND AVE.,

Cor. West Water St.,

MILWAUKEE, WIS.

Re-Ground and Re-Corrugated Rolls.

ROBERT JAMISON,
NEENAH, WISCONSIN.



**WATER WHEELS
AND MILLSTONES.**

Best and Cheapest in the world. Manufactured by A. A. DeLoach & Bro., Atlanta, Ga.

Every farmer can now afford a Grist Mill.

Sixty-four page Catalogue free.

**OUR
BUCKETS
ARE NOT
COMMON (HEAP
ONES)
BUT ARE
FIRST CLASS
ELEVATOR
BUCKETS
IN EVERY
RESPECT**

SALEM
GENERAL AGENTS
CHICAGO
W. J. CLARK & CO.
SALEM, OHIO

**THEY WERE
AWARDED
FIRST
PREMIUM
AT THE
MILLERS'
INTERNATIONAL
EXHIBITION
CINCINNATI, O.
1880**

[Please mention this paper when you write to us.]

Flouring Mill For Sale or Rent

AT JANESVILLE, IOWA.

Beautifully situated in one of the finest Agricultural districts of Iowa. A splendid building, with nearly new machinery, and dam substantially rebuilt. It has five run of stone, unfailing water power, and forty-three acres of land directly surrounding the mill. I will sell this mill for less than half its actual value, or rent it on reasonable terms. For particulars address

J. I. CASE, Racine, Wis.

Flint & Pere Marquette R. R.**LUDINGTON ROUTE.****Fast Freight & Passenger Line.**

Freight Contracted on through Bills Lading to all points in
*Michigan, Indiana, Ohio,
 New York, Pennsylvania,
 New England & Canada.*
 AT LOWEST RATES.

All freight insured across Lake Michigan. Passengers save \$2.75 to all points East.
 Dock and Offices, No. 24 West Water St., one block from Union Depot.

L. C. WHITNEY,
 Gen'l Western Agent.



3 TRAINS EACH WAY DAILY
 —BETWEEN—
**MILWAUKEE, FOND DU LAC, OSHKOSH,
 NEENAH and MENASHA.**

PARLOR CARS

through from Chicago via Milwaukee without change on Day Trains.

NEW AND ELEGANT SLEEPERS

from Chicago to Stevens Point on Train leaving Chicago via C. & M. & St. P. R'y Co., at 9 P. M.

Also a Superb Sleeper from Milwaukee to Neenah attached to the same train, leaving Milwaukee at midnight. N. B.—This Sleeper will be ready for passengers at Road St. Depot, Milwaukee, at 9 o'clock P. M.

2 TRAINS EACH WAY DAILY
 —BETWEEN—
MILWAUKEE and EAU CLAIRE.

1 A DAILY TRAIN TO
Ashland, Lake Superior.

NO CHANGE OF CARS

From Milwaukee to Stevens Point, Chippewa Falls, Eau Claire or Ashland, Lake Superior.

These superior facilities make this the **BEST ROUTE** for **GRAND RAPIDS, WAUSAU, MERRILL** and points in **CENTRAL WISCONSIN.**

F. N. FINNEY, **JAS. PARKER,**
 Gen'l Manager, Milwaukee. Gen'l Pass. Agent, Mil.

Detroit, Grand Haven & Milwaukee
RAILWAY LINE.

The Shortest, Cheapest and Quickest Route
 —BETWEEN THE—

WEST AND EAST

New York, Boston, and all points in Northern and Eastern Michigan.

COMMENCING MAY 17th,

the Palace Side wheel Passenger Steamer "City of Milwaukee," will leave Milwaukee daily, Sundays included, at 12:00 noon and connect at Grand Haven with Limited Express Train which leaves at 8:00 P. M. Time, Milwaukee to New York, 32 hours.

Ticket Office, 99 Wisconsin Street,

SLEEPING CAR BERTHS

can be secured. Dock, foot of West Water Street.

GEORGE B. REEVES, **B. C. MEDDAUGH,**
 Traffic Manager, West. Pass. Agt.
 Chicago. Milwaukee.

W. J. SPICER, Gen'l Manager, Detroit, Mich.

RICHMOND MANUFACTURING CO.,
LOCKPORT, N. Y.,

MANUFACTURERS OF ALL KINDS OF MILLMACHINERY

Warehouse Receiving Separator, Grain Separator
 AND OAT EXTRACTOR.

WHEAT SCOURERS,

—AND—

Wheat Brush Machines,

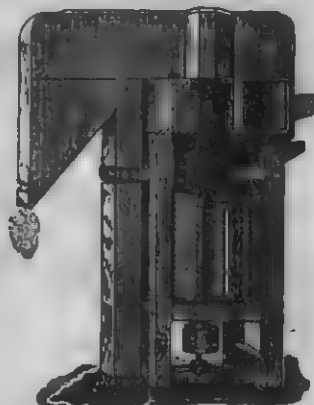
UPRIGHT AND HORIZONTAL BRAN DUSTERS,

CENTRIFUGAL FLOUR DRESSING MACHINES.

Thousands of these Machines are in successful operation, both in this country and in Europe. Correspondence solicited.

SEND FOR DESCRIPTIVE CATALOGUE.

(Please mention this paper when you write.)



Adjustable Brush Smut Machine.

LAND & THOMPSON,
 REAL ESTATE DEALERS AND

GENERAL LAND AGENCY OFFICE,
 109 Sycamore St., DALLAS, TEXAS,

Will attend to the Sale, Purchase, Exchange, and Lease of Lands; Locating of Lands; Paying of Taxes, and Protection of Lands; Redemption of Lands from Tax Sales; Inspection of Lands and Perfecting of Titles; Make Investments for Capitalists, and Make Loans on Lands, and all other matters in any way connected with the General Land Office Business, in a Prompt, Reliable and Satisfactory manner.

Farm Lands, Stock Lands,
MINERAL LANDS,

BUYING AND SELLING OF FARMS, RANCHES AND STOCK.

OVER ONE MILLION ACRES OF THE FINEST

Grazing & Farming Lands in Texas for Sale at low Rates to Actual Settlers.

Buy and Sell City Property; Rent and Collect Rents; place Fire Insurance; Pay Taxes and keep Up Improvements and Conduct a General Real Estate Business in all Branches. Being personally acquainted with the Prominent Land Operators and Real Estate Men of St. Louis, Chicago, Indianapolis, Cincinnati, Baltimore and other Principal Cities, and possessing all other necessary facilities, we are enabled to place Property entrusted to us with a rare Promptness and upon such Advantageous Terms as but few Land Agents can Duplicate.

Our Terms are Liberal, as the New Era of Low Prices Demand they Should Be.

Correspondence Solicited, and References furnished on Application.

To Preserve Iron and Keep Boilers and Flues from Scaling, use

H. P. GRAVES' BOILER PURGER.

It has been practically demonstrated that a scale one-sixteenth of an inch thick on a Boiler will require twenty per cent. more fuel than a clean Boiler, while a scale one-fourth of an inch thick will require sixty per cent. more fuel. The scale is a non-conductor of heat, and its formation in Boilers is general through the United States, more especially in the lime and alkali districts, and enough attention has not been paid to keeping Boilers free from accumulations. The cost of fuel for steam purposes is an important item, and any system for economy in this direction should receive due consideration. I am manufacturing a **BOILER PURGER** which I claim is the best made: *First*.—That it will remove the scale from any Boiler, and, by its continued use, will keep it from forming. *Second*.—That it will not injure the Boiler, Valves or Cylinder, nor foam the water, nor injure the water for drinking purposes. It is easy to use, being in a liquid form, it can be put directly into the Boiler, through the Safety Valve, Whistle Valve, or by Force Pump, or into the Tank. *Third*.—That by its use, from fifteen to forty per cent. can be saved in the cost of fuel, besides the expense of putting in new flues every one or two years.

We also refer with pleasure to the following who are using our **BOILER PURGER**: C. A. Ellsbury & Co., Minneapolis, Minn.; Bassett, Hunting & Co., McGregor, Iowa; Milwaukee, Lake Shore & Western Railway; The J. I. Case Threshing Machine Co., Racine, Wis.; Racine Hardware Mfg. Co., Racine, Wis.; Janesville Machine Co., Janesville, Wis.; and all Engineers running out of Milwaukee on C. & M. & St. P. R'y.; Larkin & Rand Powder Co., Plattville, Wis.; Edw. Allis & Co., Milwaukee, Wis.; Wisconsin Central R. R. Co., Milwaukee, Wis.; Cramer, Aikens & Cramer, Milwaukee, Wis.; V. Blatz Brewery, Milwaukee, Wis.; Ph. Best Brewing Co., Milwaukee, Wis.; Northern Hospital of Insane, Winnebago, Wis.; and many others.

Address, for prices, etc., to

H. P. GRAVES,

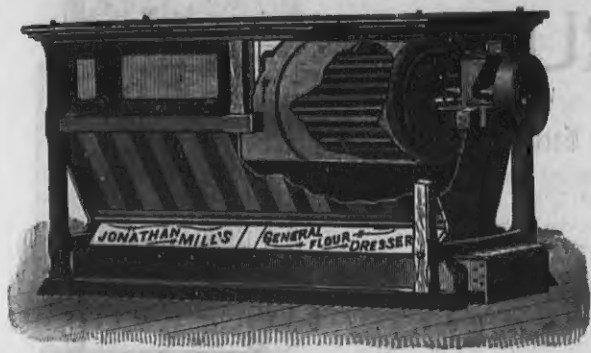
CHICAGO, 255 South Canal St. MILWAUKEE, 343 Virginia St.
 MINNEAPOLIS, 327 Hennepin Ave. DETROIT, 36 Jefferson Ave.

(Mention this paper when you write to us.)

JONATHAN MILLS UNIVERSAL FLOUR DRESSER

GUARANTEED TO BE SUPERIOR TO ANY OTHER BOLTING DEVICE FOR

CLEAR, CLEAN



Bolting or Re-Bolting

OF ALL GRADES OF FLOUR.

Finely Designed and Mechanically Constructed; Low Speed; Occupies Small Space, and has Immense Capacity.

For Price List, Sizes and Dimensions, send to

THE CUMMER ENGINE CO.,

CLEVELAND, OHIO.

Send also for 150 Page Catalogue Describing their Engine.

[Please mention this paper when you write to us.]

BIRGE & SMITH, PRACTICAL * MILLWRIGHTS,

PLANS, SPECIFICATIONS AND ESTIMATES

MADE FOR ALL KINDS OF

Millwork, Machinery, Etc.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers.

COR. EAST WATER AND KNAPP STS.,

MILWAUKEE, WISCONSIN.

[Please mention this paper when you write to us]

STAGER'S Patent * Automatic * Damper, STEAM AND FIRE REGULATOR.

This Machine is specially adapted for use of Flouring Mills, and all establishments using considerable steam power. It is provided with a

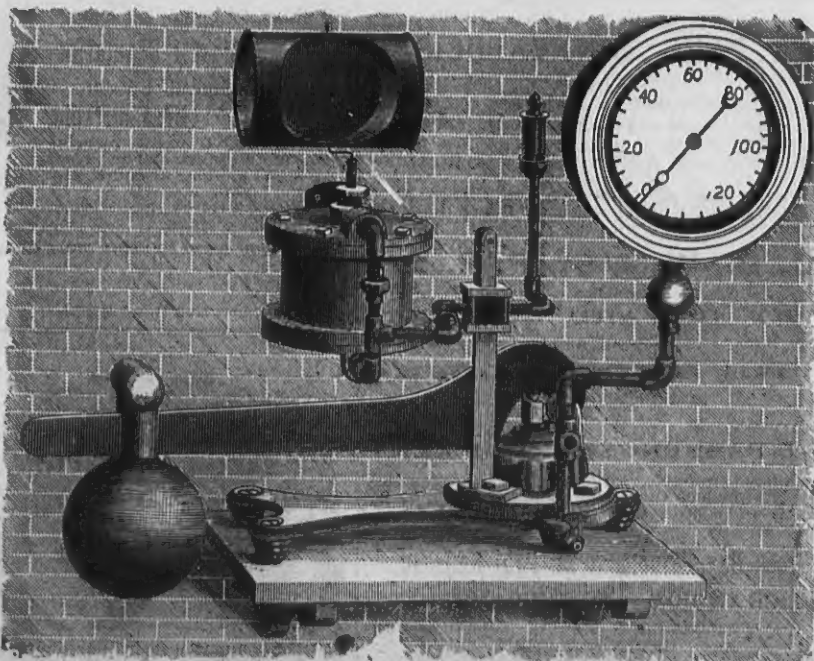
Low Fire and Steam Alarm!

and the most accurate Steam Gauge in the world. This attachment is guaranteed to save from 10 to 25 per cent. in fuel, and can be set so as to regulate the pressure of steam to any desired pressure. For prices and further information, write to me and state the length and diameter of Boiler and number of Tubes or Flues, and whether you have round or square flue to smoke stack. It will pay all steam users to give this appliance their early and careful attention. Address all communications to

H. E. STAGER,

Room 48, Mack Block, MILWAUKEE, WIS.

[Mention this paper when you write to us.]





EUREKA MANUFACTURING CO.,

Manufacturers and Sole Proprietors of the

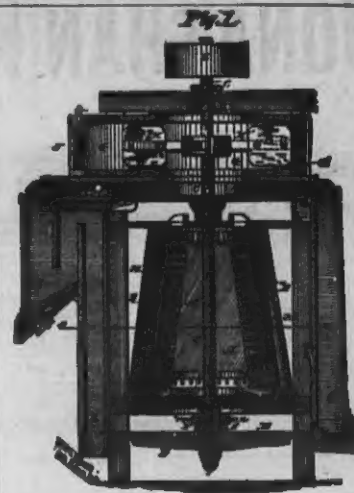
BECKER BRUSH

And Galt's Combined Smut and Brush Machine.

The Only Practical Cone-Shaped Machines in the Market, for the Reason the Best. ADJUSTABLE WHILE IN MOTION.

THOUSANDS OF THESE MACHINES are in use in the United States and foreign countries, and so far as we know all that use them are pleased. Millers, millwrights, and milling experts claim the Cone Shape Solid Cylinder Brush is the true principle to properly clean grain. All machines sent on trial, the users to be the judges of the work. For price and terms apply to

EUREKA MFG CO., Rock Falls, Ill., U. S. A.

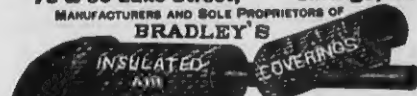


[Please mention this paper when you write to us.]

SHIELDS & BROWN,

78 & 80 Lake Street, - Chicago, Ill.

MANUFACTURERS AND SOLE PROPRIETORS OF
BRADLEY'S



FOR BOILERS AND STEAM PIPES.

Reduces Condensation of Steam.
FOR GAS AND WATER PIPES.
Prevents Sweating and Freezing.
The best Non-Conductor of Heat and Cold in the World.
Send for illustrated descriptive Circular, and name this paper.

Green Bay, Winona & St. Paul

RAILROAD

IS THE SHORTEST ROUTE FROM

GREEN BAY

and all points in

EASTERN * WISCONSIN

-TO-

NEW LONDON,
STEVENS POINT,
GRAND RAPIDS,
WAUSAU,
MERRILL,
WINONA,
LA CROSSE,
CHIPPEWA FALLS,
STILLWATER,
HUDSON,
EAU CLAIRE.

ST. PAUL, MINNEAPOLIS,

and all points in
MINNESOTA, DAKOTA,
and all points on the
NORTHERN PACIFIC RAILROAD and ST. PAUL,
MINNEAPOLIS & MANITOBA RAILROAD.

Passengers from all points on the CHICAGO &
NORTHWESTERN R'Y, south of Green Bay and
Fort Howard, connect with the

G. B., W. & St. P. R. R.

-AT-

FORT HOWARD JUNCTION.

They will find it

THE SHORT LINE

to all the above points.

THE PASSENGER EQUIPMENT

of this Road embraces all the modern improvements
and conveniences that tend to make traveling by
rail safe and comfortable.

Be sure your tickets read via the

Green Bay, Winona & St. Paul Railroad.

S. W. CHAMPION, GAVIN CAMPBELL,
General Pass. Agent. General Manager.
GREEN BAY, WIS

MEYER & ACKERMANN,

-MANUFACTURERS OF-

Patent Metallic Fire Proof Steam Pipe and Boiler Covering.

Also Manufacturers of

Cheap Coverings.



STEAM PIPE
AIR SPACE
CORRUGATED RIM
ZINC
SATURATED PAPER
HAIR FELT
PAPER
TIN
PAINT.

BEST OF REFERENCES

FURNISHED ON

APPLICATION

870 Kinnickinnick Avenue,

MILWAUKEE,

WISCONSIN.

[Please mention this paper when you write to us.]

Did you hear us?

We told you over a year ago
that our Engine was "on the
market to stay." We now tell
you it is the best Engine in the
world, and is gaining favor
every day and everywhere.

Highest Economy,
Closest Regulation,
Finest Automatic Cut-off,
Most Durable,

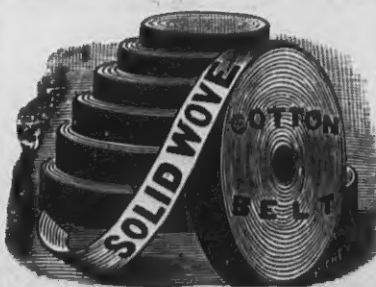
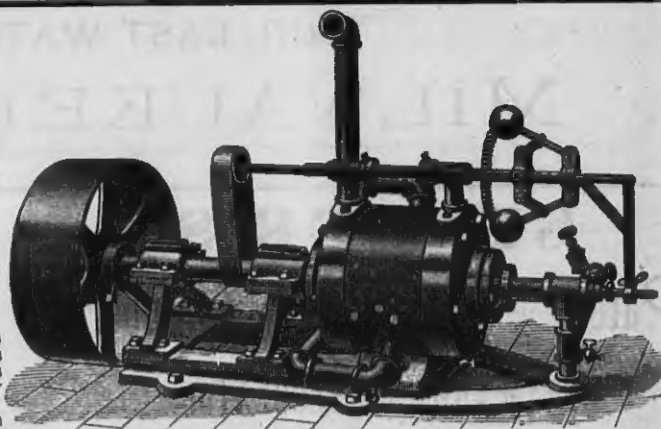
THE BEST in all respects
and for all uses, and on prices
we can double discount any
engine maker in the U. S.
Yes, it's a rotary, and we can
prove all we claim.

If you want to know more about it send for Circulars and References.

WADE & WARDELL,

Cadillac, Wexford Co., Michigan.

[Please mention this paper.]



MILL SUPPLIES

Leather } BELTING, BOLTING CLOTH,
Cotton }
Rubber }

Elevator Buckets, Bolts, Mill Irons, &c.

Prices Close and Quality the Best.

The Case Mfg. Co., Columbus, O.

[Please mention this paper when you write to us.]

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

— BUILDERS FROM THE RAW MATERIAL, OF —

Roller Mills, Centrifugal Reels

FLOUR BOLTS, SCALPING REELS,

* ASPIRATORS, * MILLSTONES, * PORTABLE * MILLS, *

AND KEEP THE LARGEST STOCK OF ALL KINDS OF

Mill * Supplies

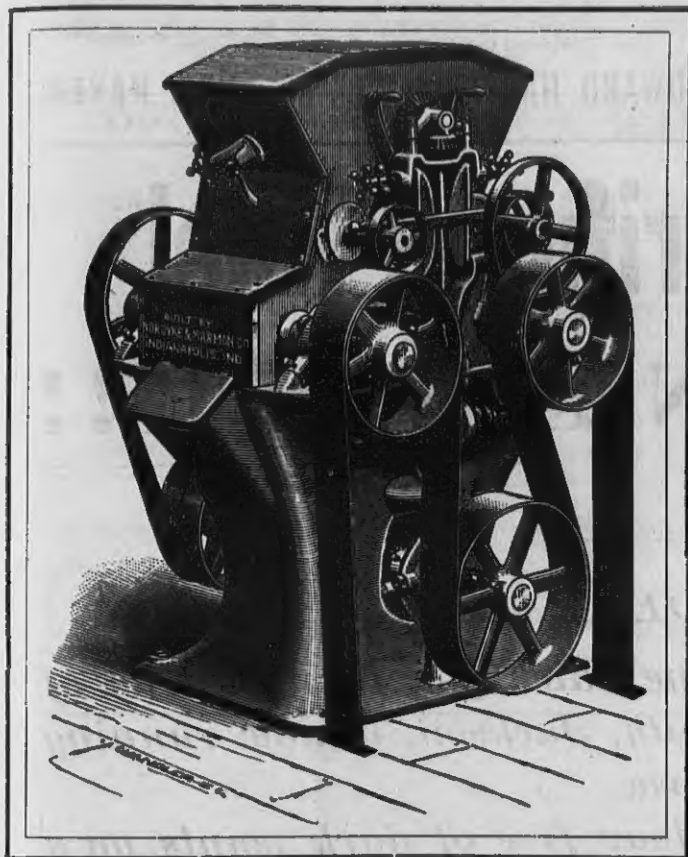
IN THE UNITED STATES

Mill Builders and Contractors.

GUARANTEE RESULTS.

Special Milling Department.

Motive Power and Entire Equipment of a Modern Mill
Furnished under one Contract.



140 BARREL MILL, MEMPHIS, TENN.

MESSEES. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—Our mill, as planned and diagrammed by you, has been in steady operation for nearly one year past, and in proof that you have given us a successful job, we will simply say that in the face of a very dull trade, and while other mills were running on short time, we have been running full handed, in order to supply a genuine demand for our flours. We must also notice, that although you only promised us 100 bbls. capacity, we easily make 140 bbls. per day without deteriorating in grades of flours. We use No. 2 wheat, and consume 4 bushels and 23 pounds in making a barrel of flour. We make about 28 per cent. of very high patent, 68 of bakers, and 6 per cent. of low grade. Yet our mill is so constructed that we may vary the percentages to suit various markets. We have always been victorious in the sharpest competition, and from the first day of starting we have kept the highest position among all roller mills either located or represented in this region.

Yours truly,

G. W. COWEN & CO.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen:—We have just been awarded all the first premiums on flour offered at the great Fair and Exposition. We made a clean sweep of them all, over all competitors, which includes all the mills in St. Louis, and all over the West, in fact the entries were open to the whole United States. We received 1st premium on Patent Flour, 1st premium on Straight Flour, 1st premium on Clear Flour. This embraces the entire list; the flour was made on your rolls, and you should make the fact widely known. Hurrah! for the N. & M. Co., and Anchor Milling Co.

NOTE.—The entire reduction of the wheat and middlings is made upon our rolls in this mill.

Yours very truly,

JOHN CRANGLE, V. Prest.

NORDYKE & MARMON CO.

500 BARREL MILL IN MISSOURI

Read what an Old Miller who has thirty-four pairs of these Rolls in constant use says:

MESSEES. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

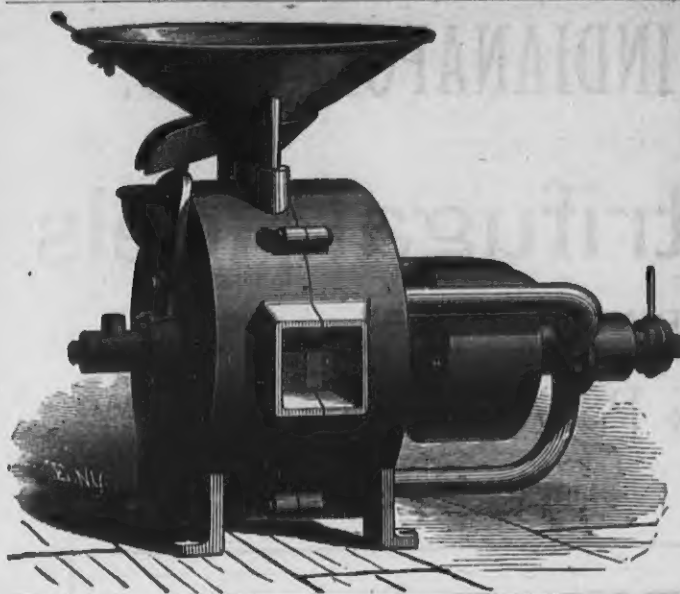
Gentlemen:—In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 88 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors: "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

Yours, etc.,

B. H. FAUCETT, Prest.

Letters on file in our office from a large number of small Roller Millers giving as favorable reports as above. A portion will be published as occasion demands.

[Please mention the UNITED STATES MILLER when you write to us.]



THE EDWARD HARRISON MILL CO.,
MANUFACTURERS OF
HARRISON'S
STANDARD GRINDING MILLS
OF ALL SIZES.
10,000 IN USE.

Every Mill Warranted to do just what we claim for it. Write for our 98 page Illustrated Catalogue, and mention this paper.

The EDWARD HARRISON MILL CO., NEW HAVEN, CONN.

THE
Geo. T. Smith Centrifugal Reel
IN EUROPE !!

KOPENHAGEN, DENMARK 18th MAI, '85.

The Centrifugal Dressing Machine which you furnished us, of system and manufactory Geo. T. Smith, Jackson, is now running three weeks in our large Mill at Malvoe.

The machine produces a sharp flour free of dark points, on a Silk Covering No. 11, 12 and 13, 2000 to 2200 lbs. grinded dunst of Soft Wheat perfectly free of flour. Besides this favorable result, the machine furnishes several advantages by its construction against other Centrifugals, and I do not hesitate to declare this machine to be the best we have worked with until now, and to recognize that its invention means a progress in milling.

Very Respectfully,

**KJOBENHAVNS DAMPMOLLER.
 GEZ. RUD. SCHMITH.**

FOR PARTICULARS AND PRICES ADDRESS

Geo. T. Smith Middlings Purifier Co., Jackson, Mich.

[Please mention this paper when you write to us.]